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lake michigan region planning council

Little Calumet River Study

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Lake Michigan Region Planning Council, Inc.

Project 66-1

THE LITTLE CALUMET RIVER DESIGN STUDY

A Regional Planning and Flood Control Project

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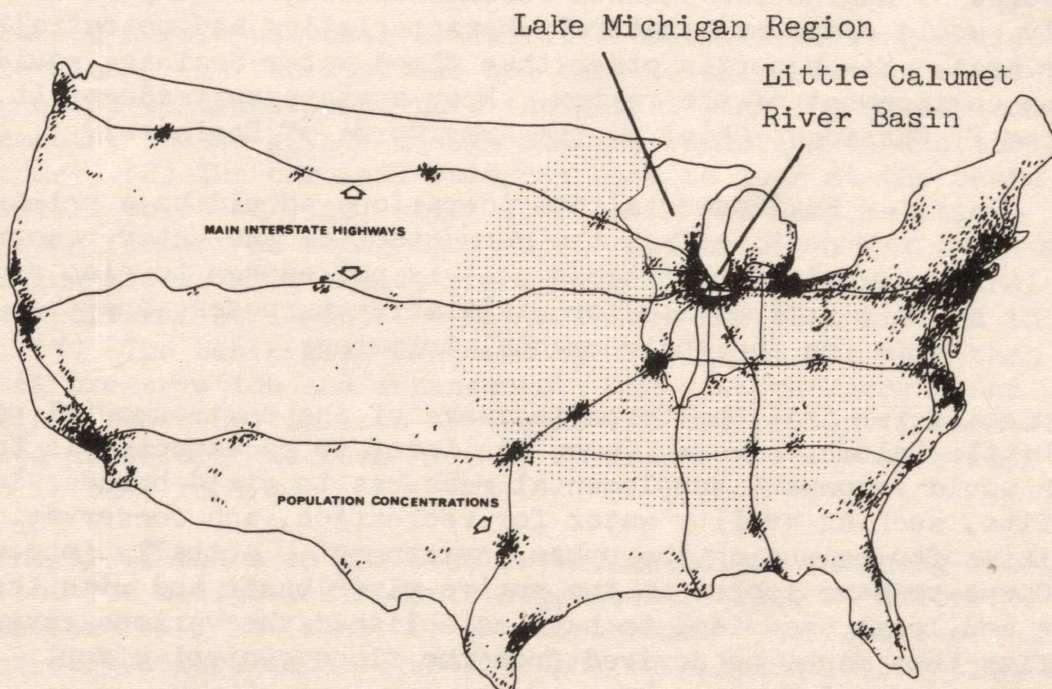
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INTRODUCTION

FORWARD:

The area around the southern tip of Lake Michigan is a hub of North American commerce and human activities. In this area is a river basin whose physical condition has been, and will continue to be greatly influenced by human development in the Lake Michigan region and the United States as a whole. Fig 1 emphasizes this situation by showing the river basin and the Lake Michigan region related to populated areas and main lines of land transportation across the nation. The river, known as the Little Calumet, is today a microcosm of problems. Through the 19th century, the Little Calumet was a quality river corridor, a source of basic living necessities and pleasant natural amenities. Beginning at the turn of the century however, rapid industrialization caused uncontrolled growth in the area. Lack of organization and a long-range plan for development left the area to be influenced by quick-gain, spontaneous development. Within 50 years, unwise use of the land and irresponsible pollution of the air and water had drastically altered the regional environment. At present, the Calumet region is one of the country's main industrial nucleations; it is also as neglected and depressing an environment as has been produced anywhere.

Figure 1



Parts of the Calumet region have been the subject of much study. Most of the attention has been directed toward specific concerns such as flood drainage, industrial and commercial navigation, or the engineering of highways. Over the past few decades, the problem of flood drainage has become acute. Damage has grown more and more severe with each flood. As a result, planning attention has been focused upon the river. In 1948, the U.S. Army Corps of Engineers, an agency of the federal government, was directed by Congress to study the problem. In 1955, they recommended a program of channel improvements as the "most economically feasible method" of controlling flood waters. Since then, the federal government has become aware of the increased value federally-funded projects could have, if environmental considerations beyond the scope of the immediate problem could be taken into account. The environmental deterioration of the Calumet region can no longer be ignored, nor can improvement be approached piecemeal. In this respect, the efforts to correct the flood problem present a significant opportunity to (1) unite localities, states, and the federal government for the common good of the region, and (2) to initiate comprehensive environmental planning. The real question then, is what the area might become at its best, given a carefully considered plan for managing land and water resources. To bring together this larger question with a broad suggested answer is the basic purpose of this report.

OBJECTIVES:

Until now, a basic disregard for resource management has prevented planning which could demonstrate the environmental potential of the Little Calumet river. Too long, flooding and pollution have perpetuated the river's image as a nuisance rather than an asset. To become an asset, the river will have to be transformed into something more than a flood control device; it must become an environmental attraction.

The Corps of Engineers' channel recommendation, while perhaps the least costly, would erase many natural characteristics and potentials from the river area. Few benefits other than flood water drainage would be added to the environment of the region. From a statement made by Lt. General William F. Cassidy, Chief of the Army Corps of Engineers,

Environmental considerations should be a primary objective from the very start of the water resource planning process. It is not enough to plan projects exclusively for utilitarian purposes, and then add on the environmental trimmings.....

one might infer that the Corps is aware of the environmental potential of the Little Calumet river. Thus, the least to be expected is that the Corps would recommend supplemental measures to yield broader long-range benefits, such as quality water for recreation, and conservation of natural amenities for balancing the urban environment. Actually, one would expect the Corps to have looked at the entire river basin and with the help of state and local agencies, to have established the various environmental benefits that might be derived from the flood control effort.

On the other hand, coordinated efforts on the part of local governments and support at the citizen level must be forthcoming if meaningful improvements are really to be effected. Local people must become cognizant of the total benefits to be gained, and the corresponding local costs thereof. For example, the Corps could recommend the acquisition of open space land along the river for enhancement purposes. If there is an awareness of the potential benefits involved, and a willingness to participate with local money, the Corps would be more likely to account for this and similar enhancement measures in their recommendations to be submitted for Congressional approval in mid-1969.

Consequently, the principal objectives of this study are (1) to demonstrate the potential benefits of planning environmental improvements beyond the scope of the immediate flood problem; (2) to help local governments realize the necessity for coordinated efforts towards a design of a really comprehensive nature involving the river, the river basin and human development in the entire region; and (3) to stimulate the public to demand the kind of quality environment in which they are entitled to live, and at the same time realize the responsibilities associated with developing that environment.

In the case of the Calumet region, flood control in itself is only part of the answer to the large-scale environmental issue at hand. Other dramatic problems are related to the more basic questions regarding land use and development patterns in terms of expected population growth. When such aspects have been considered and it is realized that the rehabilitation of the region could result from a comprehensive approach, the Little Calumet river project may well become the basis for a truly significant improvement of the American scene, and an outstanding example of creative federalism.

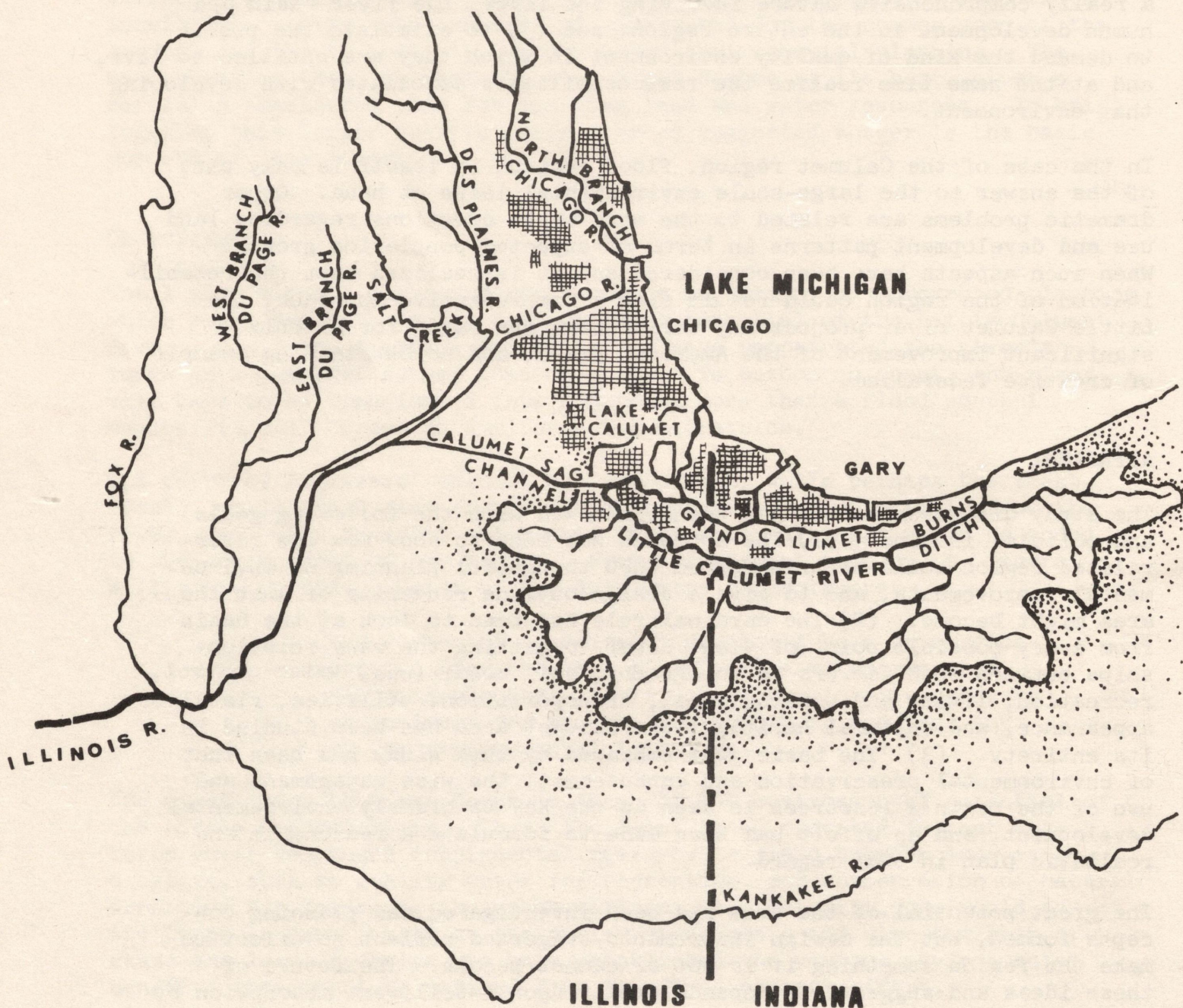
APPROACH:

The study discussed herein has been conducted with the following goals and policies in mind: (1) The approach has been to show how the river-related region could be transformed thru thoughtful planning of environmental improvements, and to give a design outline rendering of what the area might become. (2) The cardinal rule has been to look at the basin from every possible point of view, never forgetting the many relationships between such factors as topography, soil conditions, water control, recreation, living and working areas, transportation, utilities, visual appearance, and cultural heritage; the Calumet area has been studied in its entirety. (3) The basic goal embraced by this study has been that of environmental preservation and enhancement; the wise management and use of the basin's resources is seen as the key to orderly environmental development, and an effort has been made to formulate a reasonable and realistic plan in that regard.

The great potential of the area has been investigated and planning concepts formed, but the design instruments suggested reflect no effort to make the region something it is not or cannot become. The future of these ideas and suggestions depends wholly upon intelligent absorption by

the local, state and federal agencies involved, and by the citizens affected. As presented, they must be further adapted to detailed design study and translation into actuality thru approved regional agencies, political and economic power groups.

The Little Calumet River Basin related to the drainage pattern around the southern end of Lake Michigan.



SECTION 1

DESIGN SURVEY (Planning Conditions)

This study survey deals basically with an exploration of the region's natural characteristics, formations, and resources; the region's previous human development; and its present circumstances. It is comprised primarily of a visual and functional examination of these conditions in correlation with a research of reference material. The information discussed in this section is intended to give an indication of the region's environmental status; its fundamental givens and its existing condition. For a point of clarity and although additional factors have been given consideration, the general definition of the Calumet region is taken to include the entire Little Calumet river basin from its southern boundary north to, and including, the industrial lake front. This area's normal climatic conditions are noted as follows. Rains are plentiful, about 33 inches annually, and winters bring snows that average about 35 inches. Spring arrives late and is usually cold and wet, making the region seem to plunge abruptly from winter to summer. Lake winds cool the region during the summer, while autumn is late and generally warm and delightful.

NATURAL LAND CHARACTERISTICS: (Fundamental design base)

The principal physiographic features of the Calumet region were produced during the last 20,000 years. They are the result of events and processes associated with the advance and subsequent retreat of the last glacier--the Lake Michigan lobe of the late Wisconsin ice sheet. End moraines, consisting of rolling hills of a clayey but pebbly earth material, were deposited when the glacier margin remained stationary for relatively longer periods of time. The most conspicuous of these end moraines is the Valparaiso moraine which embraces the lake in an immense "U", see fig 2 and 3.

The major divide of watersheds corresponds very closely to the crest of the moraine. All streams which start south of the crest find their way to the Mississippi river by way of the Kankakee and Illinois rivers and eventually mingle with the waters of the Gulf of Mexico. Those streams that start on the north side (except those which have been altered by man) ultimately reach the Atlantic ocean through the Great Lakes and the St. Lawrence river.

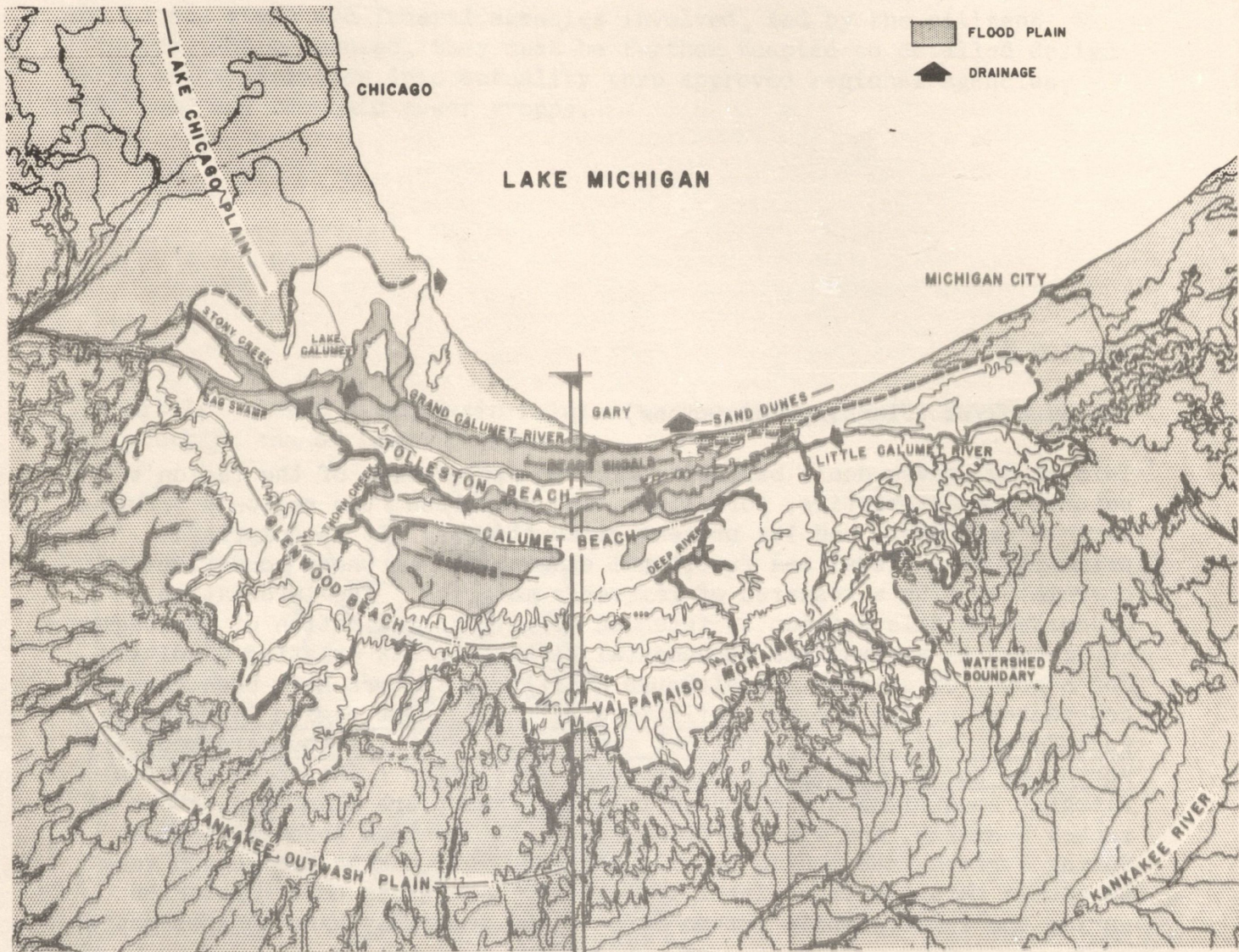
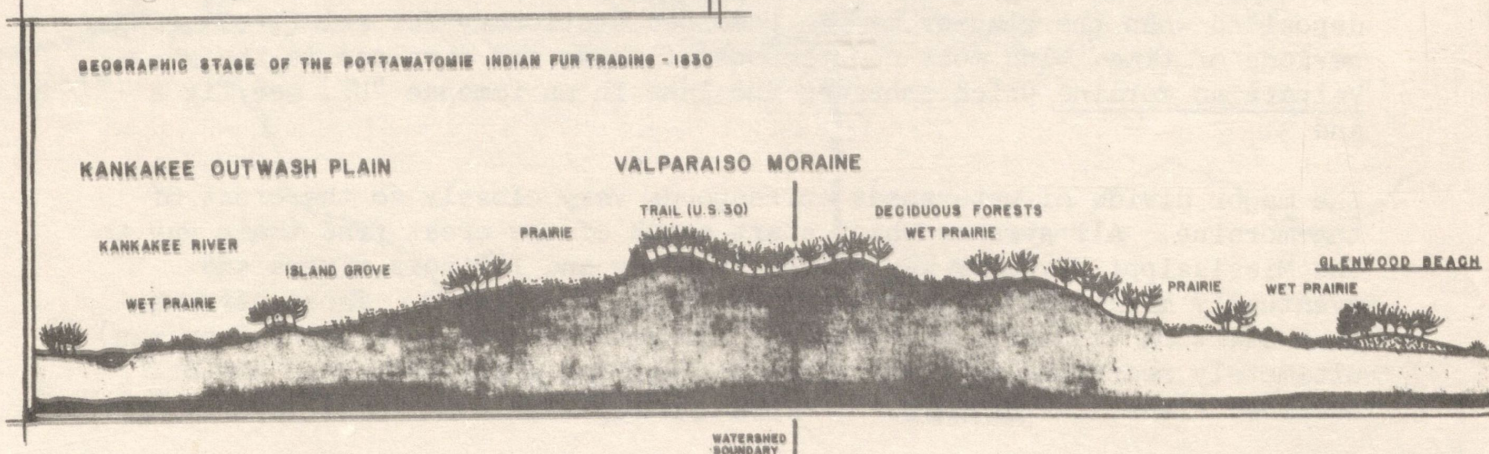


Figure 2

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Figure 3

GEOGRAPHIC STAGE OF THE POTAWATOMIE INDIAN FUR TRADING - 1630

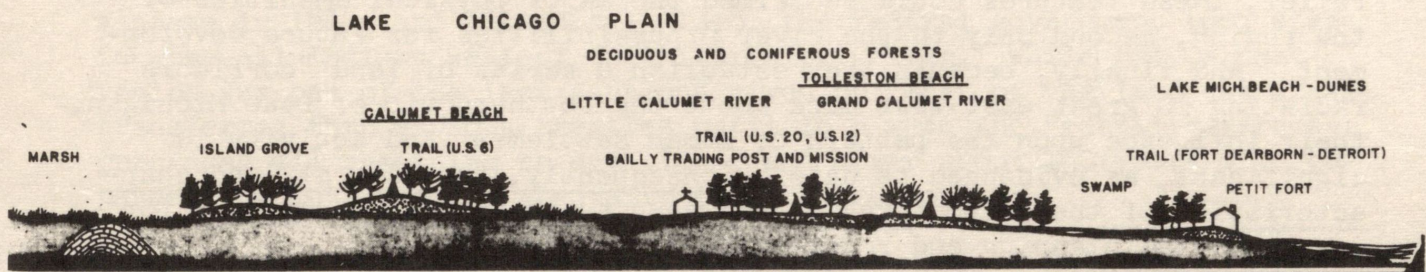


North of the moraine is the lake plain which was once covered by glacial Lake Chicago. As the ice sheet receded, water from the melting glacier formed a lake between the glacier and the moraine. Dammed by ice further north, the lake continued to rise until it over-flowed the moraine at its lowest point near the present city of Chicago. At this point a channel was eroded thru the moraine, and for awhile the glacial waters found their way to the Des'Plaines river, thence to the Illinois and the Mississippi rivers via this outlet. However, this course was later to change.

Glacial waters were at one time about 60 feet above the present level of Lake Michigan. The retreatal history of the glacier produced several complex fluctuations in the level of Lake Chicago some of which are preserved as prominent land forms. A series of beaches exist at succeeding lower elevations and each of these sandy ridges is developed northward of the preceding one. They are identified today as the Glenwood, Calumet and Tolleston beaches. The present level of the lake, about 580 feet above sea level, was finally reached when the ice sheet withdrew entirely and lower outlets were uncovered further east. Thus, the lake's drainage was directed eventually into the Atlantic ocean. In this process, the lake plain emerged almost as it stands today, and Lake Chicago became Lake Michigan.

The watershed of the Little Calumet river, as shown in fig 2, comprises about a 600 square mile basin on the north slope of the Valparaiso moraine and in the Lake Chicago plain. From its source south of Michigan City, Indiana, the river originally meandered thru a linear arc of old lake bottom between the Calumet and Tolleston beach ridges. At Sag swamp in Illinois, and after traversing about 50 miles east to west, the river made a sharp reverse curve, re-entered Indiana and continued back eastward draining into Lake Michigan near the present site of Gary's Marquette park. Then about 160 years ago, a new outlet (near South Chicago, Illinois) was opened by the Indians channelling a way thru the marshes. This created two rivers; the southern one, the Little Calumet river which flowed westward across the region and into Lake Michigan at South Chicago; and the northern one, the Grand Calumet river which flowed eastward to Marquette park. The new outlet at South Chicago apparently affected the flow of the Grand Calumet river; by 1872 its outlet was closed by aquatic vegetation and drifting sand.

Since the rivers are located in the lake plain which is physically very flat, they are inherently sluggish and were often clogged with vegetation. The Little Calumet river little more than made a channel for itself. Into it, is deposited runoff from the moraine slopes carried by tributaries such as Salt creek, Deep river, Thorn creek, and Stony creek. During excessive rains, these waters were seldom carried away fast enough and the



river overflowed, flooding the surrounding areas. At some points, such as near the present city of Gary, Indiana, water extended over a mile in width. Such is the natural process of the Little Calumet river; a process established and evidenced by the physiography of the entire river basin.

The natural personality of the Calumet region was composed of interesting and varied landscape features. Besides the formation of rivers, flood plains, marshes, and the unique series of beach ridges, there were other and significant formations. Lake bottom sand shoals articulated by glacial waters and characterized as a variation of marshy low-areas and sand-ridges, sometimes ran nearly straight for miles. Dunes, post-glacial in origin, were formed by the westerly and northwesterly winds blowing from the lake across the sand along the shore. Along Calumet beach, dunes that were formed while the lake was at that level, have been measured up to 40 feet in height. However, dunes that are most pronounced and most generous today, exist near the present lake-shore where some dunes exceed 200 feet in height, nearly equivalent to a 20-story building.

Natural circumstances made the river basin rich in plant and wild life. As a whole, it has seen more than 1,300 species of flowering plants and ferns. Not very far apart, one could find plants of the desert, the forest, the swamp, and the prairie. Fields of blue-stemmed prairie grass and deciduous timberland of oak, maple, elm, beech, and birch stretched towards the Valparaiso moraine and southward into the Kankakee outwash plain. Between the beach ridge formations, swamps and marshes with pond-weeds, cat-tails, wild rice, and cranberries mixed in a random pattern with small-growth timber, mainly yellow and white oak; and further north along the lake-shore, jack-pine and juniper covered the leeward sides of the dune formations. Because of the cover afforded by the vegetation and the presence of food in the swamps and marshes, more than 300 varieties of birds were at one time found in the region. About half were seasonal residents. Other wild life was typical of that found in the middle-west. Deer, bears and timber wolves roamed the dunes and sand ridges, while ducks and geese abounded on the waters of the swamps and sloughs which were infested with mink and muskrats.

Thus, the region's land and water resources, in their original state, composed an abundance of natural amenities and basic necessities of life. However, its main topographic formations, primarily the linear patterns of the moraine and the beach ridges rising from the flat lake plain, are the fundamentally unique parts of the Calumet region. They form the Little Calumet river and influence its process. Furthermore, because of their ability to support vegetation and to supply some topographical relief, these features could be termed the major physical amenities of the region, second only to the river in possibilities for future development. And finally, because they establish a series of land "corridors" radiating in great east-west arcs about the southern tip of Lake Michigan, their influence upon the pattern of human settlement and activity is significant, as evidenced to date. Consequently, the natural land characteristics of the Calumet region are seen as basic design patterns for developmental planning and resource management.

HISTORICAL DEVELOPMENT (The cultural background)

The Calumet region has a historical heritage which, if noted and utilized in design and planning, could enrich the lives of occupants and visitors alike. Apparently the French were the first to name the rivers "Calumet". The name has several suspected derivations; among them is the assertion that Calumet is the French version of Indian words meaning a low body of deep still water. Also since the rivers were nearly still streams with low banks fringed by a heavy growth of reeds, "Calumet" is thought to be a corruption of the Old French "Chalemel", meaning reed. Since the latter part of the 17th century, the region has been occupied by the Pottawatomie tribe, claimed by the French and the English, and finally settled by "early American stock". Some of the historical traces from the Indian and early white exploratory and settlement eras have been sketched in map form in fig 4, and some are also noted in fig 3.

Until about 1763, historians consider the region to have been part of the French Empire in America. As probably the first white visitors to the area, the French were thought to have appeared as the picturesque and adventurous "coureurs de bois" (bush-rangers) and "voyageurs" (boatmen). Father Jacques Marquette apparently skirted the region along the lake shore around 1675, and LaSalle explored the Kankakee river further south around 1679. About 1680, the Pottawatomie Indians, who had earlier migrated from upper Michigan to upper Wisconsin, began to move southward to settle around the lower end of Lake Michigan and as far south as the "great Kankakee marshes". While the Indians apparently had no permanent homes in the region, they did prize the area as a source of furs, fish and various kinds of wild berries which they traded with the French. After the French were defeated by the English in the French and Indian war, the lasting impression of French influence was slight, and in later years there was little of significance to remind people that their marshes and sand dunes had once been a part of "New France".

During the period of English control, between 1763 and 1783, the Indians, having been past allies of the French, were treated arrogantly and became resentful of encroachment upon land that had before lain open to claim. Promised French aid, and led by Pontiac, the war chief of the Ottawa tribe, they began furious attacks on English garrisons. When French aid failed to materialize, and with their resources drained in a vain effort to take Detroit, Pontiac sued for peace in 1764. English control led to more supervision of Indian affairs, to the regulation of fur trade, and eventually to the enlistment of Indian aid against the American revolutionaries in 1776. Following the revolutionary war, the Pottawatomie remained loyal to the English. They were to take up arms against the United States for the last time in the War of 1812. After Indiana became a state in 1816, and Illinois in 1818, the Federal government took steps to move all Indians west of the Mississippi river. While the Calumet region was one of the last sections given up, most of the land was slowly transferred thru various treaties until 1836 when the Federal government purchased all remaining reservations, and after about 150 years of occupancy, the Pottawatomie gradually left the region.

region became an important north-south artery. It linked Vincennes, the first permanent settlement in Indiana founded by the French in 1735, and Fort Dearborn at Chicago, with most of the Indian villages and bands of the Pottawatomie tribe between. It also became one of the great pioneer roads for immigrants making their way west. Thus, the lasting influence of the Indian upon the region is perhaps best preserved in their trails, many of which have since been converted into modern transportation corridors; the Sauk (U.S. 30), Calumet beach (U.S. 6), and Tolleston beach (U.S. 12 and 20).

Following the statehood of both Indiana and Illinois, early American settlement began in earnest during the first half of the 19th century. Most of this pioneer settlement was located on isolated farmsteads. A fascinating relic of these log-cabin days is the Bailly homestead, the first white settlement in the region. A cluster of log cabins remains at the site of what was known as the leading trading post of northwest Indiana; a rendezvous point for Indians, traders, adventurers, missionaries and government officials. Founded in 1822 by Joseph Bailly, a French fur trader with an Indian wife, Baillytown was located on the north bank of the Little Calumet river northwest of the present town of Chesterton, Indiana. Baillytown is today historical evidence of the era of log-cabins and isolation which grew to an end as the second half of the century began. Railroads began pushing their tracks thru the region towards the robust young city of Chicago. New towns such as Tolleston and Miller, Indiana, were formed almost as soon as the railroad tracks were laid, and areas of the Calumet region heretofore inaccessible, were open to further development.

The early history of Hammond, Indiana, oldest of the larger cities in the region, is closely related to the development of the railroads. It is also considered to be the site of the beginning of the modern meat-packing industry in the United States. Named after George H. Hammond, who was the first to build and successfully operate a refrigerator car for the transportation of beef, the city was largely populated by German immigrants for many years. Their influence on its cultural and economic life is evident to the present time.

In 1889, the region experienced the first substantial impact of the industrial revolution. Standard Oil Company began construction of a refinery at Whiting, Indiana, and shortly thereafter, East Chicago saw the formation of the region's first steel manufacturing industry. With the discovery of vast ore fields in upper Minnesota and the low cost of lake shipping, more industry began moving into the region. By 1906, the United States Steel Corporation had opened its huge plant with its own new town at the Lake's tip, called Gary, Indiana. Gary was a city by decree included in the steel company's over-all plans for the plant. Considered to be a major step towards improving industrial-worker relations, in 1915, Gary was listed as the greatest single calculated achievement of the nation's steel industry. The city's name was inherited from Judge Elbert H. Gary, then chairman of U.S. Steel, who once expressed that the city was intended to be "nothing more than the product of effort along practical lines to secure right living conditions around a steel-manufacturing plant".

Thus, began the 20th century metamorphosis in the Calumet region. Industry began reshaping the lake front to suit its own purposes, and a burgeoning population of immigrants began carving cities into the marshes and dunes further south. Many earlier influences would be replaced by modern industrial complexes bringing a new kind of life to the region. Within a few short years, a vast number of new immigrants forming a variety of ethnic groups would come to occupy the Calumet region. On top of the old immigration (1820-1880) of English, Irish, German and Scandinavian peoples, these later inhabitants came from the Balkans, Italy, central Europe and Russia; and the arrival of the Negro and Mexican made the population ever-more diverse. This presence of so many nationalities and races, produces a variety of flavors almost unique to the Calumet region and in fact, comprises an integral part of its cultural character and attitude.

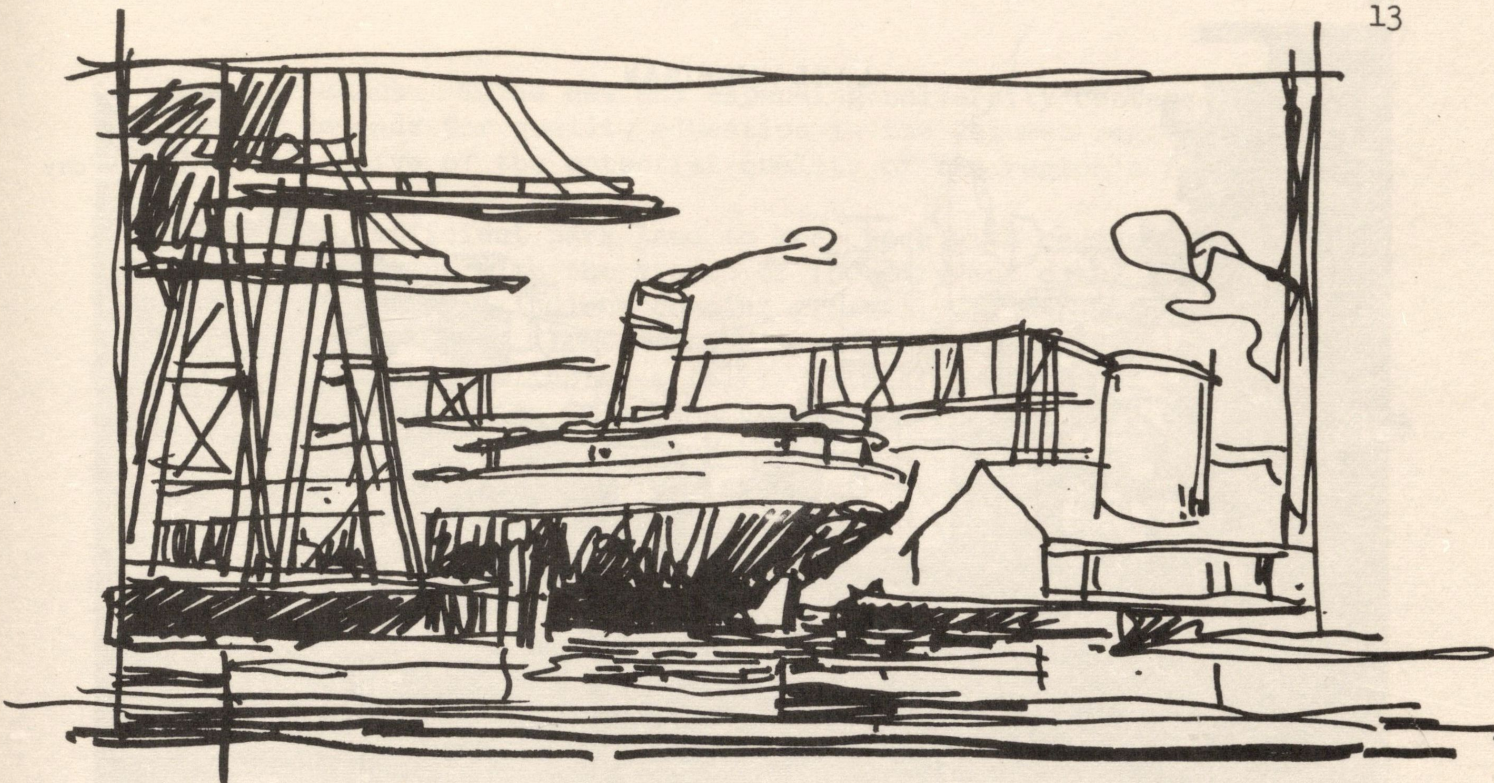
It is clear that the historical development of the Calumet region has many aspects on which to build a cultural heritage and further develop the cultural values of the area. Certainly the region's heritage from Indian to industrial worker, deserves publicizing and planned use in a campaign to better identify the historical image and cultural characteristics of the Calumet region.

20th CENTURY GROWTH (An environmental reformation)

The transformation of the Calumet region from its natural state to an industrial area took less than half a century. First, the industrial revolution and today the technological revolution have signified the coming of an era of even greater and more rapid change in the future. To date, the idea of "progress" has meant the growth of industry and the expansion of transportation; and in few other areas can this be more readily seen than in the Calumet region. A particularly significant influence upon this "progress" is a geographical location which is central to the whole of North America and next door to the Chicago metropolitan area.

Concurrent with industrial growth, urbanization produced a continuous built-up area extending from Chicago around the lake to just east of Gary, Indiana. Today, the area is one of the nation's main urban-industrial compositions, producing a major percentage of its steel products. The area provides jobs for a large work force and facilities for nearly a million people. Unfortunately in the process, much of the natural environment has disappeared.

Physically, the industrial revolution did indeed transform the lake front into a kind of "Steel Coast" of factory complexes. There they found quantities of water for manufacturing processes and could build facilities for unloading ore and supply ships. Five major steel producers, United States Steel, Inland, Youngstown, Midwest and Bethlehem Steel as well as their allied manufacturers are so located. Area harbors include Lake Calumet (Port of Illinois), Burn's harbor (Port of Indiana), and the older harbors at South Chicago (Calumet), Indiana Harbor, and Gary. Lake and



ocean-going vessels operate in these facilities with access to both the St. Lawrence seaway and the Mississippi river thru the Great Lakes chain and the Illinois waterway respectively. The initial development of major ports of commerce at Lake Calumet harbor and Burn's harbor, and the addition of new manufacturing complexes such as Bethlehem's Burn's harbor plant, accent the continuing industrial and commercial expansion within the Calumet region.

Since development of residential areas came in response to industrial-worker needs, the region's cities exist inland with access to the lake almost totally blocked. As shown in fig 5, the main residential and business districts consist of the cities of Hammond and Gary, Indiana, and a number of suburban towns in Illinois, south of Chicago. Interspersed between, is a hapless patchwork of dependent "bedroom" communities with minimal services and facilities. The fringe of this patchwork, which might be characterized by what is commonly called "urban sprawl", has been creeping further and further into the farm and timber lands that lie south. Under present circumstances, responsibility for human development is well divided. Within the region, there are just as many commissions and agencies as there are various industrial districts, communities and counties indicated in fig 5. Furthermore, almost all of these agencies and commissions are dealing with the development of separate and particular parts of the over-all environment.

Urbanization has also been influenced by the natural land characteristics of the Calumet region. The east-west arc patterns formed in the land by the last glacier, have greatly affected movement patterns thru the region, and consequently its development. The flow of traffic around the lower end of Lake Michigan has long congested the region. With the coming of

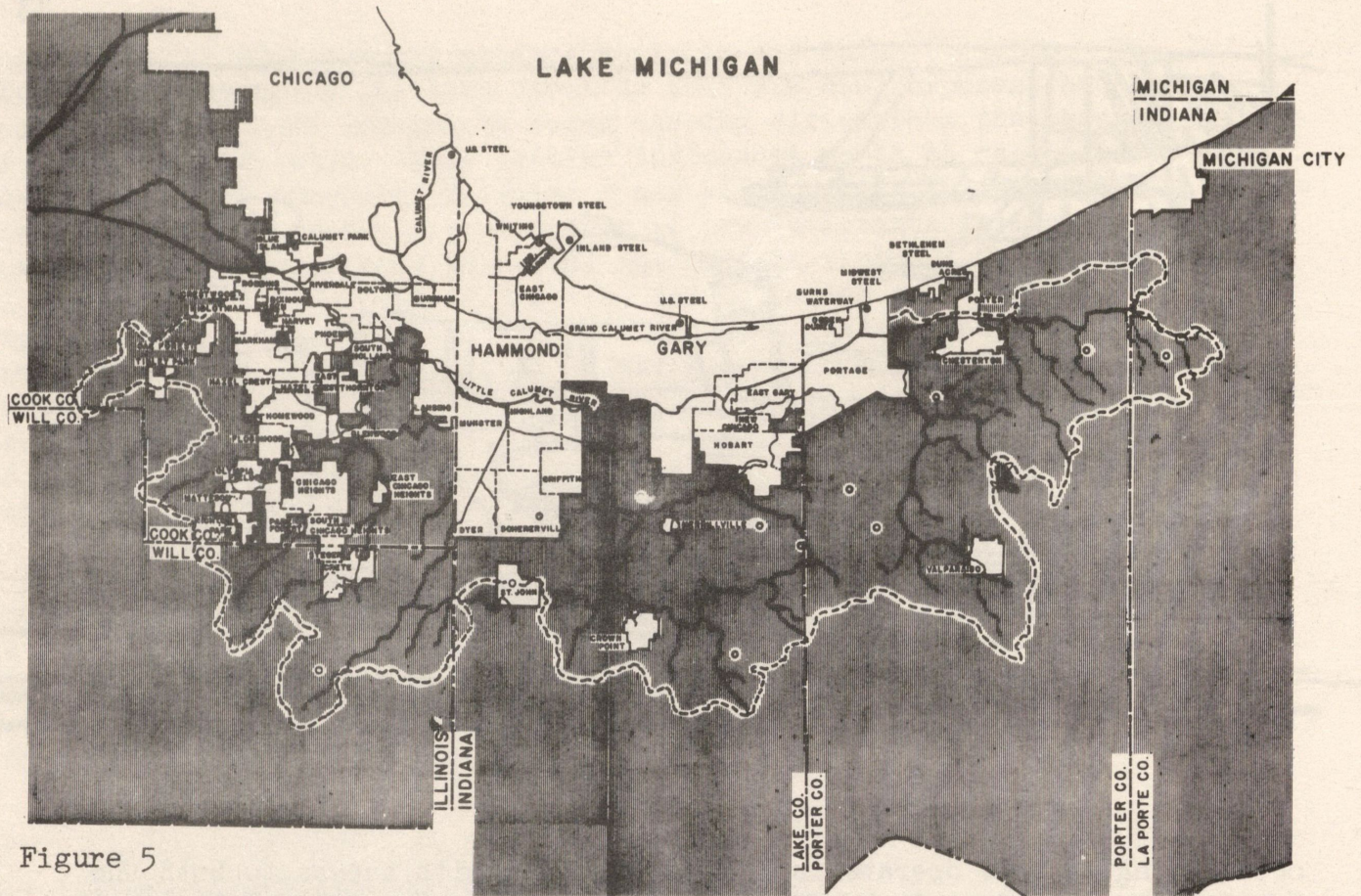


Figure 5

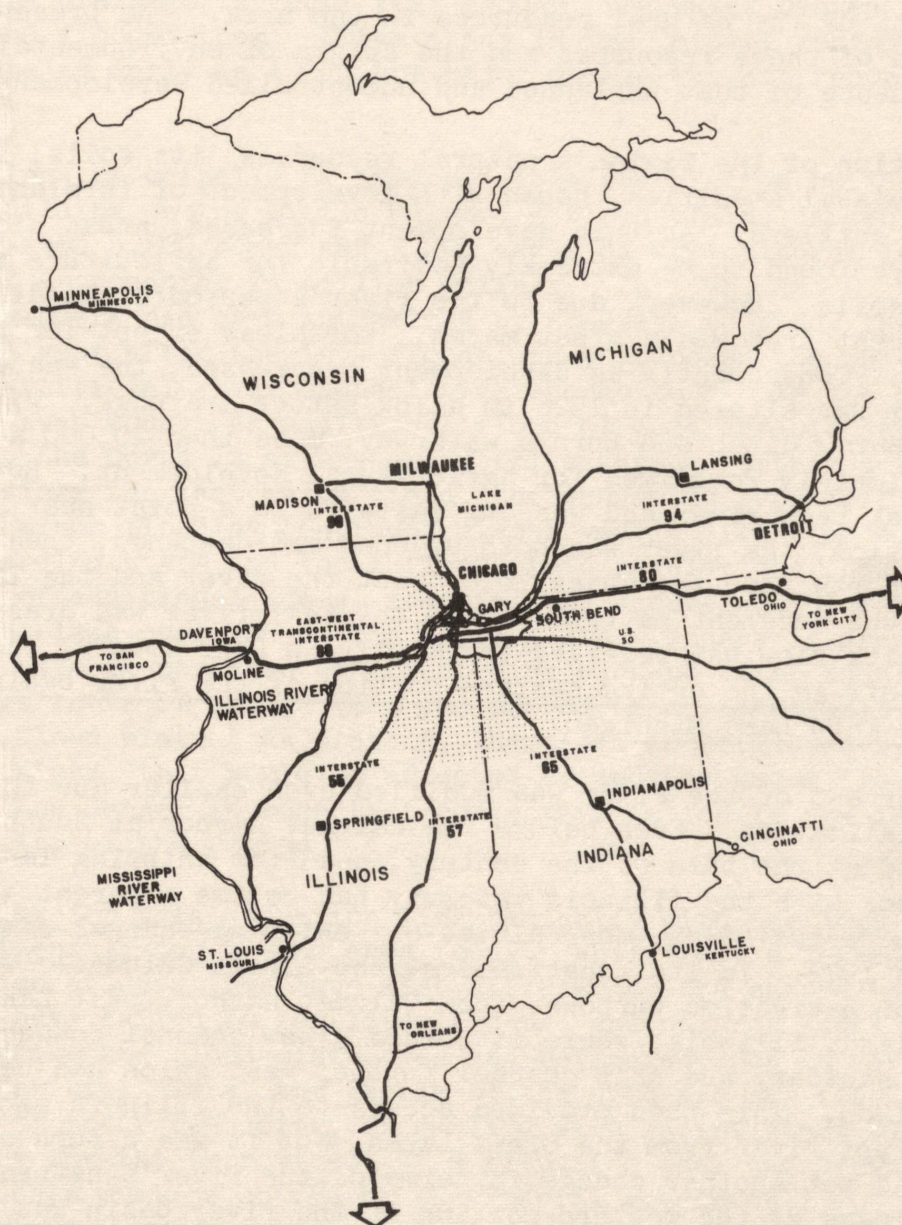
the railroads and the advent of auto travel, more and more traffic developed. It generally followed main roads constructed along the old trails originally following the natural land formations. As a result, development trended across the region in an east-west manner. Today, numerous roads of movement, utilities and communications serve the area. Major railroads criss-cross the region in east-west directions interspersed with large marshalling and freight yards, and the auto transportation boom is reflected by busy interstate expressways. The main traffic in the region is carried on the Tri-State expressway, interstate 80. This east-west artery has caused recent developments to occur, especially near access points (highway interchanges) reinforcing the spread of urban growth across the region in an ever-more linear way. Currently being enlarged in order to carry increasing localized traffic and to funnel cross-country traffic thru the region, interstate 80 pulses with insistent activity; and as can be seen in fig 6, it connects New York City on the East coast to San Francisco on the West coast, and along with highways from other directions, is a good example of a transportation network causing a convergence to further accentuate the region's strategic location.

The coupling of major cultural and educational facilities with urban development is evidenced by growing branches of two major universities located in the urban area described above. They are Purdue, Calumet Center in Hammond, and Indiana University, Northwest Campus in Gary. Both are situated near the Little Calumet river which could become an invaluable amenity in terms of campus planning, and both provide facilities for about 3000 students each. In addition, higher education authorities in Illinois have been considering a location near Homewood for another major University

of Illinois campus. These new and expanding university centers express the growing demands for quality education in the Calumet region. They are also indicative of the potential quality of the region's future.

Development of sufficient park land to keep pace with recreation needs has been inconsistent with the growth of industry and city. Recreation parks and open space in Indiana consist primarily of Marquette park on Lake Michigan near Gary, Gleason and Wicker parks along the Little Calumet river, and in Illinois, a fairly extensive system of forest preserves along the Little Calumet river, Thorn creek and around Wolf lake. Recently, the Indiana Dunes National Lakeshore has been authorized by congress to include about 11,000 acres of rather unique duned and forested land located near Chesterton and Ogden Dunes, Indiana. As a part of the National park system, it will incorporate Indiana Dunes State park and provide park space for the enjoyment of Americans from all

Figure 6



parts of the country. Additional sources of open land lie in the extensive flood plain of the Little Calumet river. The river's frequent flooding has caused city development to stay mostly on the higher land along the Tolleston and Calumet beach ridges, leaving much of the land around the river open; most is in cultivation, some remains as marsh and grass land and some areas have been built upon. This latter condition reflects increasing pressures to use close-at-hand land where-ever it can be obtained for the least amount of money. To date, the river and the adjacent land in its flood plain remain relatively untapped for recreation and park use.

There is perhaps little wonder that this is so in view of the current debilitated condition of the Little Calumet river, its waters stagnate or polluted, its wildlife chastened away, and the air above intermittently filled with fumes and smoke. These conditions, when coupled with the flood problem, merely perpetuate its neglect and instill a general disregard for its recreation and visual amenities. Most of the growth during the 20th century came with little thought given to the over-all management of the natural resources in the area. The present modified condition of these resources and the stigma of environmental blight are sure evidence of that unplanned and uncontrolled development.

Modification of the region's natural resources, its soils, its waters and its visual amenities, began with development of farmland by the earliest settlers. As this development increased, areas close to the river were found to be extremely desirable for agriculture because of the fertile soils. However, due to the river's periodic flooding much of the adjacent area was a great marsh, "worthless except for hunting and fishing". Consequently as development progressed, the eastern part of the river was altered in 1926 to allow better drainage. With the construction of Burn's ditch and Burn's waterway, more than 20,000 acres of land were ultimately reclaimed for agricultural development. Burn's ditch started at Deep river and was dug eastward to a point near Salt creek. In this section, the river was both widened and deepened, then a waterway was cut north thru the dunes to connect the river and the lake. As a result, the movement pattern of the original river was drastically changed; part of its flow was reversed (primarily in Lake County, Indiana) and the run-off in the entire eastern portion of the river basin was diverted directly into Lake Michigan.

The other end of the river was modified even earlier due to the needs of industrialization. Even before the Calumet harbor at South Chicago was completed at the turn of the century, need for shipping lanes connecting the harbor with the Illinois waterway had become apparent. As the pressures became more insistent, the Calumet-Sag shipping channel came into existence in 1922. In its construction, the Little Calumet river was improved for major navigation purposes from Calumet harbor, past Lake Calumet to Blue Island, Illinois, where it joined a new channel connecting with the Chicago sanitary and ship channel further west which had been opened around 1900. This then provided access to the Illinois waterway and the Mississippi river from the Great Lakes, but it was a turn of events that signified yet another change in terms of the river's natural operation. The drainage of the western portion of the river basin was diverted from

Lake Michigan into the Cal-Sag channel. In addition, the water level of the river was lowered until now it is about a foot to a foot and a half below the level of the lake. This level variance is presently maintained by the O'Brien dam and lock south of Lake Calumet.

Such tampering has redirected the course of drainage towards opposing ends causing the center portion of the Little Calumet river to become high and often dry. In this portion, the river's water has become stagnate and sometimes virtually disappears, often being tunneled thru mere culverts or roadside ditches. As a result, floods are more frequent and spill over larger areas since the river's naturally sluggish rate of flow has been more and more retarded. The situation was compounded by urbanization. In conjunction with the building-up of the urban areas much of the land was covered with hard surfaces. By failing to plan ahead and incorporate an adequate storm drainage system to carry increased run-off, water that would have normally soaked into the ground had to find alternative places to go. Restricted by road and railroad levees, culverts and drainage ditches too small to allow drainage to occur fast enough, the water backed up into low flat areas and flooded them. Urban areas in the Calumet region first felt these affects as early as 1907, but major damage was not recorded until 1947.

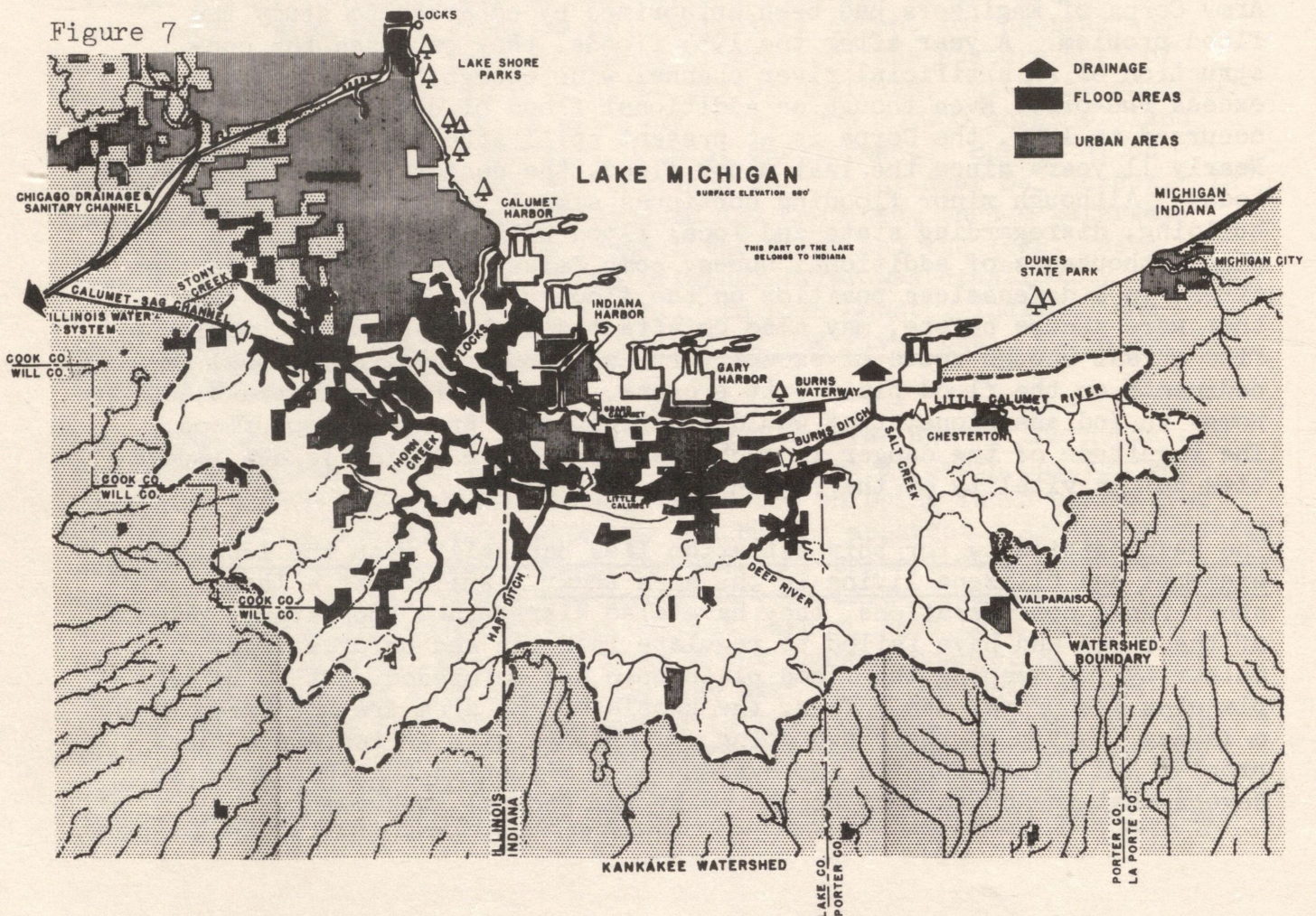
Continued tampering, principally by irresponsible speculative builders filling in and building on the Little Calumet's flood plain, caused new damage affecting some 5,200 homes and 3,200 acres of agricultural land in 1954 at a cost approaching $2\frac{1}{2}$ million dollars. In 1948, the U. S. Army Corps of Engineers had been authorized by congress to study the flood problem. A year after the 1954 floods, they proposed the construction of an artificial river channel wide enough to handle the basin's excess run-off. Even though an additional flood of considerable severity occurred in 1957, the Corps is at present still studying further action. Nearly 11 years since the last major flood, the danger is even more severe today. Although minor flooding continues almost yearly, ill-planned building, disregarding state and local flood plain regulations, has placed thousands of additional homes, some falsely secure behind earthen dikes, in a defenseless position on the flood plain. Others in areas that were secure before, may also be affected by back-up water unable to find a fast enough route of escape thru and around these additional impediments on the flood plain. At present, there are an estimated 8,000 homes in Indiana alone, that would be affected by another major flood. The magnitude of the danger is such that corrective action is now imperative to the vitality of the region.

The responsibility for this situation lies basically with the local governments and citizens living in the area today. While left a legacy of short-range considerations, they have also disregarded the natural process of the river and have failed to regulate land-use and enforce legal authority for keeping the flood plain open and unimpeded, not to mention planning its proper use. Thus, the people of the area are now faced with a legacy, partly of their own doing, of dealing with an insistent flood problem and paying for the improvement of a situation that has grown so severe that the costs must be shared by the Federal government.

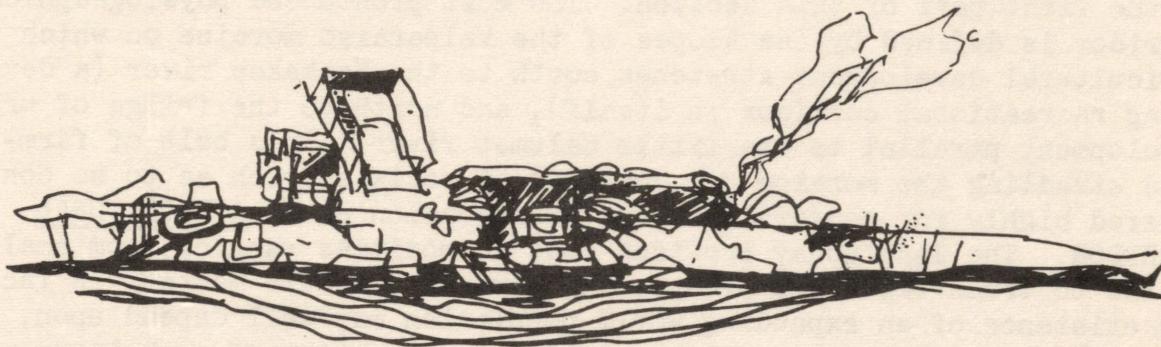
In addition to the flooding problem there are yet other environmental degenerates to be concerned about. The thoughtless pollution of the air and water in return for short-range industrial and city gains is only one too obvious example. Again the people, whether they be the nation's taxpayers or local citizens, must pay. Some industries may have intended to provide the "right" living conditions for their worker, but the rush towards total industrialization and subsequent urbanization gave little opportunity to guarantee clean waters and clean air. Even today, some riverside industries pour thousands of gallons of effluents into the water daily, while in other areas factory stacks saturate the air with tons of solid particles and malodorous fumes. The extent of the pollution has attached an infamous "I wouldn't want to live there" reputation to the region. Repair of this reputation has begun; pollution abatement laws have been established and industry is beginning to make positive headway in that direction. Although effective control of pollution could be expected as early as 1970, continued encouragement and much additional work is needed to make the area once again a naturally desirable place to live in. Generally, the situation of the region could be described as shown in fig 7. Here is graphic evidence of the industrial lake-front, the patchwork of urban development and an area clutched by wide-spread flooding.

The environmental issues described above represent and promote little respect for the region's natural qualities, let alone any of its aesthetic potentials. Irreplaceable land features have been altered without

Figure 7



reservation; dunes have been mined and drainage ways filled. Users have exploited the land, the water and the air under the guise of progress for short-term gain with no thought for their orderly development and future use. Random, unplanned and frequently incompatible land use is evidenced by factories that exist side by side with private homes, public recreation areas and schools, as well as private boat marinas along the Little Calumet river. Blight and deterioration have set in. Delapidated riverside structures combine with rotting boat docks where boating and fishing were once active recreational past-times and businesses. In some areas piles of urban refuse, auto bodies, tin cans and paper paint a scene of ultimate neglect and misuse. In one Illinois community, the river is actually fenced off on both sides--a disturbing testimonial to



its current blighted condition; and as a result of this condition, the river has largely been ignored as a design resource in the development of housing clusters, shopping centers and public open space. On the whole, open space and recreation development have taken a back seat to industrial-urban development. With access to the lake shore virtually cut off, and the river deteriorated far beyond usable conditions, the people of the area are faced with solution of yet another major problem: lack of adequate recreation and park space closely related to urban housing and activity areas.

At present, efforts to correct past happenstance and properly direct the future impact of human development are just beginning. Moreover and unfortunately so, there are other persistent and significant problems affecting the environmental attitude of the region. They are the less visual, less tangible social, economic and political problems that are greater or at least tantamount to the region's physical problems and are comparably more difficult to detail for study and planned solution. Aside from the wide range of ethnic communities creating a number of social and political barriers, the region is heavily dependent upon a single industry--steel. Fluctuations in the markets for steel products or in the labor force can produce serious economic and social dislocations throughout the Calumet region. Workers and their families comprise numerous minority groups which have flocked to or have been recruited by the factories. They bring with them various social problems such as lack of responsibility and participation in community organization. This condition tends to generate a non-constructive political situation in which crime and corruption

can thrive; and until recently, the region has been a hotbed of political debauchery and organized crime. As a result, the already vexing physical conditions of the Little Calumet river-related region are vastly complicated. Social, economic and political factors are environmental issues in themselves and directly affect and influence any physical improvement within the region. Considering these circumstances, it is evident that real improvement of the Little Calumet river involves more than the stream itself. It is essential that the natural physiographic and human development patterns of the entire basin-related (bi-state) region be considered.

The Calumet region is composed generally of three corridors. These can be categorized in terms of agriculture, industry, and urban space, tending to correspond to several of the regional land corridors described in the first part of this section. The most pronounced physiographical corridor is defined by the slopes of the Valparaiso moraine on which agricultural development stretches south to the Kankakee river (a developing recreational corridor in itself), and north to the fringe of urban development parallel to the Little Calumet river. This belt of farmland straddling the moraine is composed of soils so rich as to be considered highly for conservation and preservation as an AGRICULTURAL CORRIDOR. The land today provides food commodities ranging from small grains to truck-vegetable produce and various domestic meats. In fact, the existence of an expanding world population may well depend upon, and could be affected by the foresighted conservation of such land.

The most predominant man-made corridor follows along the lake front. Created since the turn of the century, the INDUSTRIAL CORRIDOR, or "Steel Coast" as it has already been called, provides the main job opportunities for the area but at the same time has despoiled the air and the environmental reputation of the region. Within this corridor lies the beleaguered Grand Calumet **river infected** with industrial dumping for many years; it is now a dead murky black waste, seemingly beyond rehabilitation for any real environmental purpose. While the agricultural land is in need of conservation, the industrial area is in need of reorganization in order to provide for its proper existence within man's common environment.

Between the agricultural and industrial corridors is located an urban patchwork of residential and business areas superimposed over the natural configurations of the Tolleston and Calumet beach ridges and the Little Calumet river. This patchwork composes an URBAN CORRIDOR which is about five miles wide and contains nearly a million people. Lack of timely and adequate planning has gradually allowed the environment to deteriorate. With significant changes coming more rapidly than at any time before, problems continue to mount. It is clearly evident that appropriate steps must be taken to structure future growth and correct past mistakes if the region is to improve the quality of its environmental reputation.

In short, the Calumet region is seen as a delicate ecological situation in which any urbanization, even if planned with great care would have been

and will continue to be fraught with problems. In the past spontaneous planning has been coupled with a half-century of human onslaught; the result is an environment whose qualities have suffered greatly. What is needed now is a restoration of, and a respect for, the laws of both man and nature. Natural patterns and human patterns do not have to clash; Holland is a classic example of the man-made and the natural being made to correspond thru careful design and planning. Thus, to discuss what are considered to be primary planning considerations and corresponding conceptual ideas to bring the Calumet region and the Little Calumet river basin into some semblance of balance between the man-made and the natural is the basic purpose for the continuum of this report.

SECTION 2

DESIGN ANALYSIS (Planning considerations)

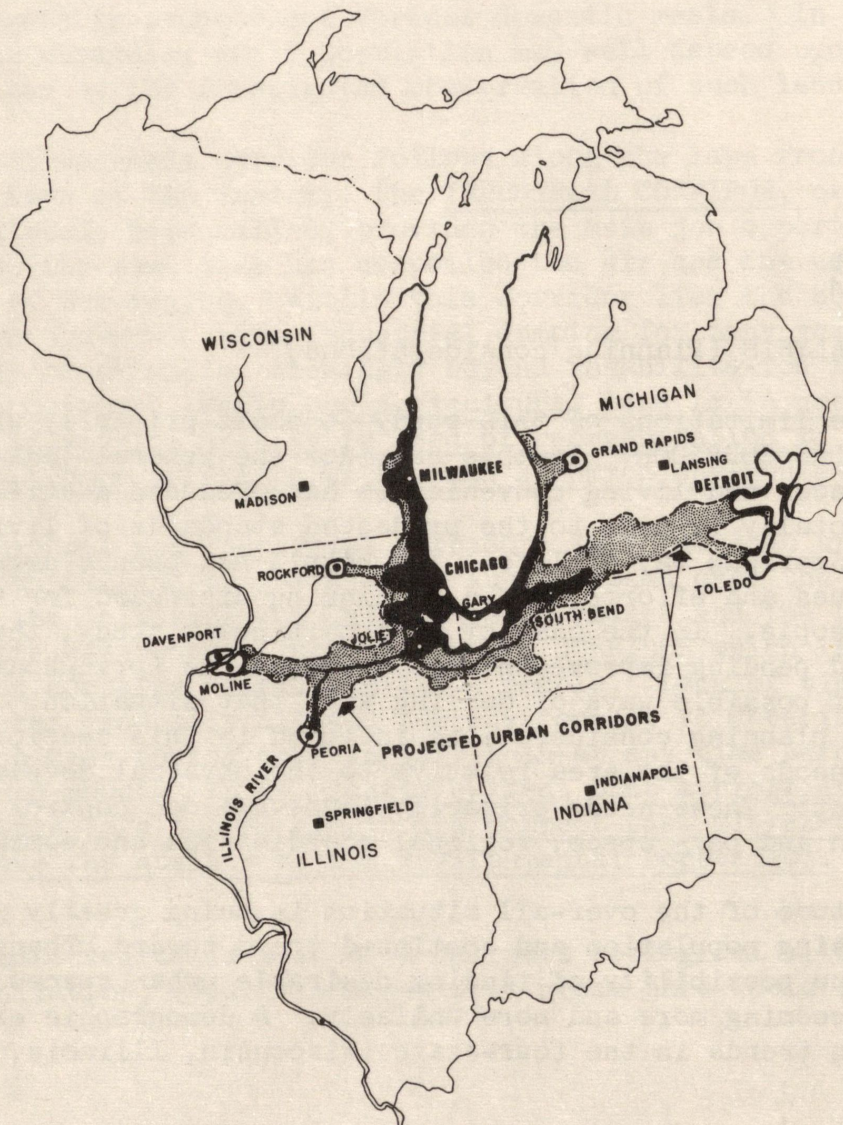
Due to the limitations of this study it deals primarily with improvement of the URBAN CORRIDOR. In this corridor the general lack of quality environmental spaces and living conveniences has produced a stifling state-of-affairs totally foreign to the projected standards of living associated with the American way of life. The result has been a degeneration of human values and efforts, and a continuing disregard for the general welfare of people. In the case of this particular study, the river's condition and pending improvement has provided the springboard for an examination of possible ways of dealing with that situation. Consequently, the basic planning considerations included in this section deal with the foremost needs of the area relative to the physical development of its environment. These needs primarily involve flood control and water quality, recreation and park space, regional coordination and compact city development.

The magnitude of the over-all situation is being greatly influenced by an increasing population and continued trend toward urbanization. In this context the possibility of finding desirable urban spaces in which to live is becoming more and more unlikely. A demographic examination of the population trends in the four-state (Wisconsin, Illinois, Indiana and

Michigan) Lake Michigan region shows that it is now (1968) approaching 30 million people. If spread out evenly over the same 200,000 square miles of area that is contained within the borders of these states, there would be a population to area density of about 150 people per square mile. However, the urban pattern around lower Lake Michigan contains nearly 10 million of these people in less than 2000 square miles and at a much higher density of about 5000 people per square mile. This population trend, characterized by the black field in fig 8, has affected nearly half of the land in the Calumet region and reflects the nucleation effect of industry and other major urban activities.

With urbanization increasing rapidly, growth has often taken varied and unusual form. Patterns of urban growth are often greatly influenced by the location of major industrial areas, especially if these areas are responding as today, to meet the needs of an expanding world community. In addition, they are being significantly influenced by developing large-scale design and economic criteria. These criteria indicate that new growth will trend into extended urban corridors connecting major points of polarity such as Chicago and Detroit, or down corridors of high resource potential such as the Illinois river valley, see fig 8. Suggestions of such criteria are found in recent studies

Figure 8



conducted by the University of Illinois Graduate Design Collaborative for the Illinois river corridor. More pertinent to the Calumet region is the Urban Detroit study prepared by Dr. Constantinos Doxiadis, architect-planner. The findings of this study indicate that in affect, the urban areas around the Great Lakes form an inter-related Great Lakes megalopolitan area whose economic and social welfare is inevitably tied together. As a result, it would appear that the Calumet region could be subjected to a kind of "omni-force" related to an emerging megalopolitan pattern that would not only tend to increase the flow of goods and people to and thru the region, but would also substantially reinforce the region's projected population increase currently expected to triple by the end of the century. Accordingly, desirable locations related to recreation and open space, and the building and operation of adequate facilities for nearly two million more people to live in the Calumet environs should be anticipated. The region must be the subject of intensive and detailed study as a premise for realistic planning and environmental development.

FLOOD CONTROL AND WATER QUALITY

For twenty years, the federal, state and local governments along with interested citizens have been trying to find an economically feasible solution to the flood problem in the Little Calumet river basin, see fig 9. In this basin, there are several methods of providing flood control. They include channelization of the river to transport flood flows thru areas to be protected and to lower water surface elevations, storage and controlled discharge of excess water in upstream reservoirs, and diversion of flood waters by gravity flow through tunnels from tributary and river inlets into Lake Michigan.

As proposed by the Corps of Engineers in 1955, the "most feasible plan of improvement" was to construct an adequate flood control channel from Lake Michigan along the general existing route of Burn's waterway, Burn's ditch, and the Indiana portion of the Little Calumet river to Hart ditch; an adequate flood control channel from the Calumet-Sag channel in Illinois along the Little Calumet river to Thorn creek; and a barrier dam between Hart ditch in Indiana and Thorn creek in Illinois. As shown in fig 10, this would entail a wide channel about 22 miles long in Indiana, and a deepening of the present river channel in Illinois. In 1965, the Corps was authorized to include "recreational navigation and allied purposes" in the flood control study for the Little Calumet river, and more recently, Corps policies have solicited the professional input of other environmental specialists relative to the solution of the flood problem.

The Corps' proposal, as it was embodied in 1967, differed little from the plan of 1955 and is still a characteristically traditional approach not going very far beyond the scope of the immediate problem. It is thus possible to assume that such a plan would be the least expensive means of alleviating flood damage. Even so, the Corps' study has suggested the need to include additional benefits to help economically justify the channel proposal. Recreational navigation benefits, along with a few trimmings, have been indicated as possible inclusions, but important other benefits

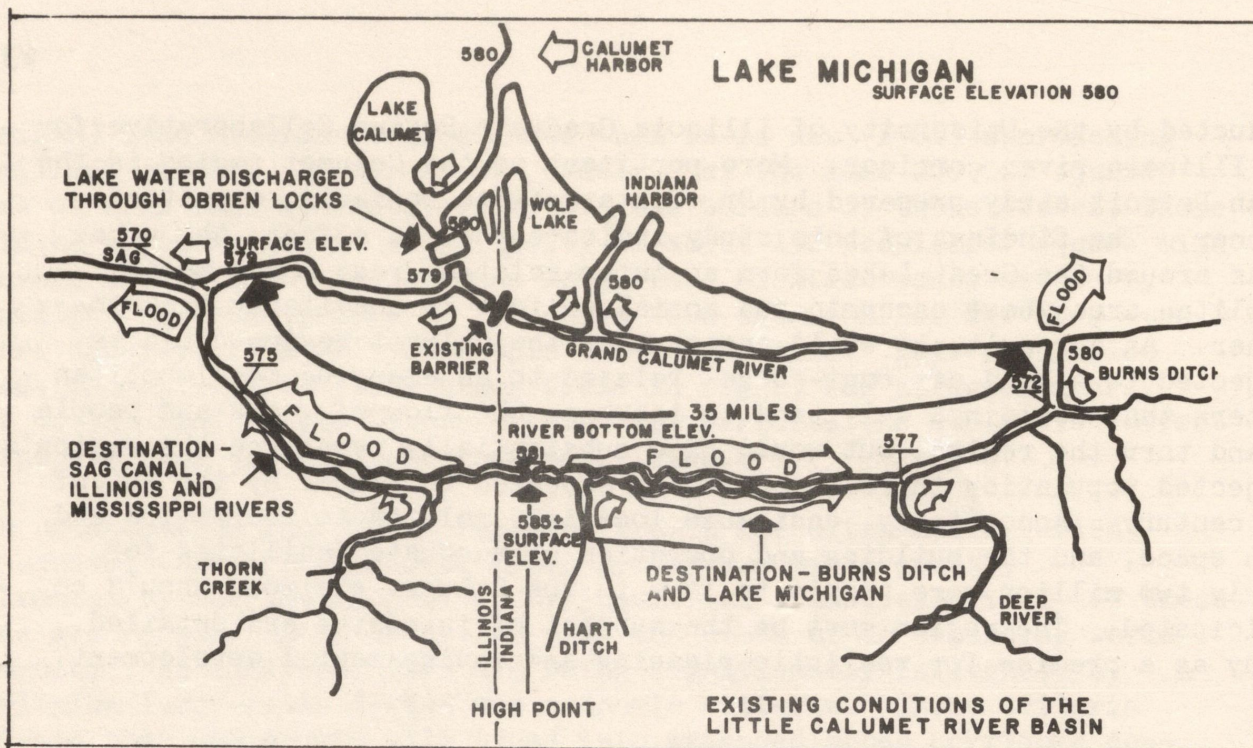


Figure 9

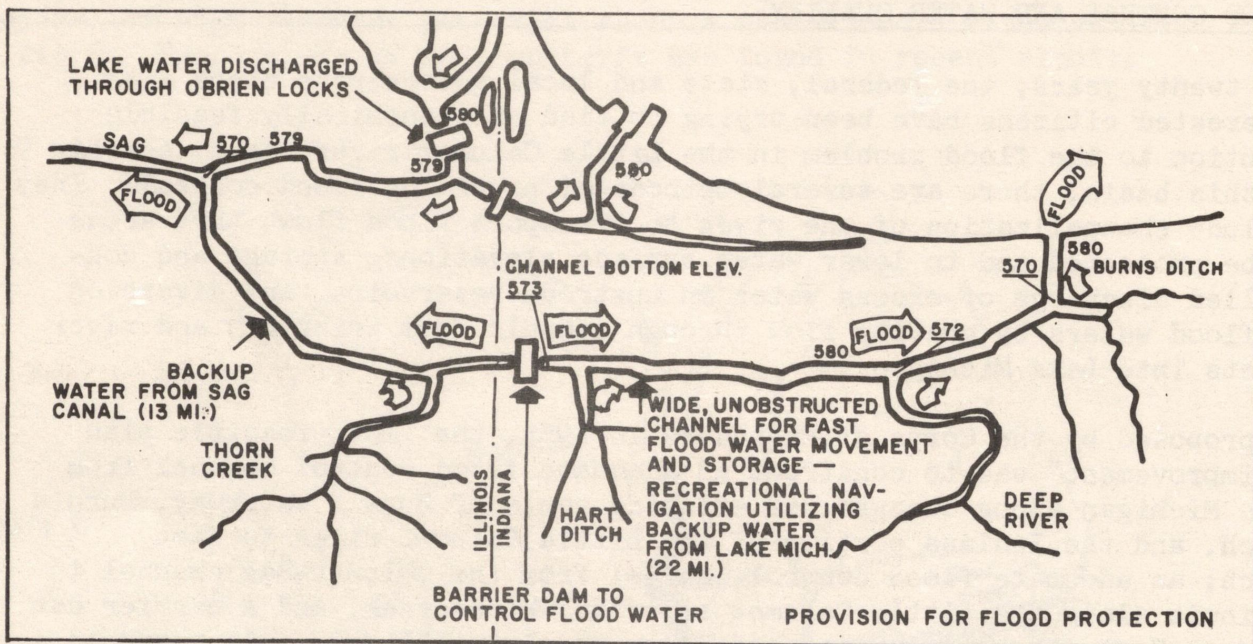


Figure 10

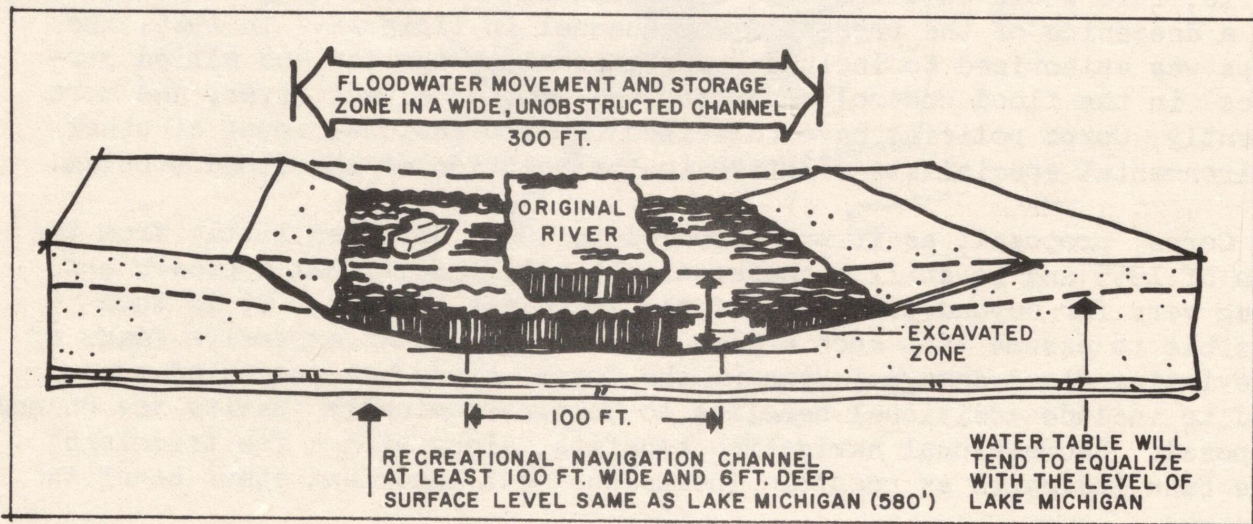
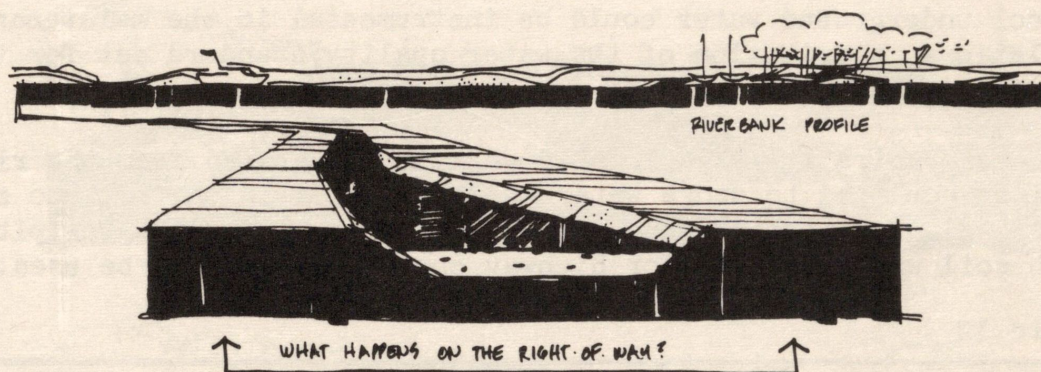


Figure 11

such as improvement of water quality and provision for park space, have not yet been given real consideration. It would seem that the enhancement value of such benefits would receive considerable study in view of need to improve the over-all economic feasibility of the flood control plan. Furthermore, it would seem that the devices of flood control would naturally be the result of a thorough analysis of the environmental issues at hand. By approaching the issue of flood control along with such issues as improvement of water quality for recreational use and provision of park space and natural amenities for the development of new places to live, the best use of the Little Calumet river would be more clearly indicated. Such an approach should then become the over-riding criterion directing the river's planned improvement.

The nature of the proposed flood control channel as shown in cross-section in fig 11, will leave an indelible and unnatural mark upon the region. In Indiana, it will form a wide unobstructed excavation up to 300 feet in width, bank to bank. Proposals for recreational navigation indicate minimum depths, derived from backup water out of Lake Michigan, of 6 to 10 feet applied to a 100 foot-wide portion of the channel. Removing earth for a channel this size will produce about 20 million cubic yards of dirt, part of which will have to be disposed of after side banks and proposed levees are constructed, or used somewhere not too distant. Furthermore, the project is expected to cause the building or extending of about 40 bridges and road approaches, the cost of which must be paid for by local governments in addition to the local cost of land needed for the channel right-of-way.



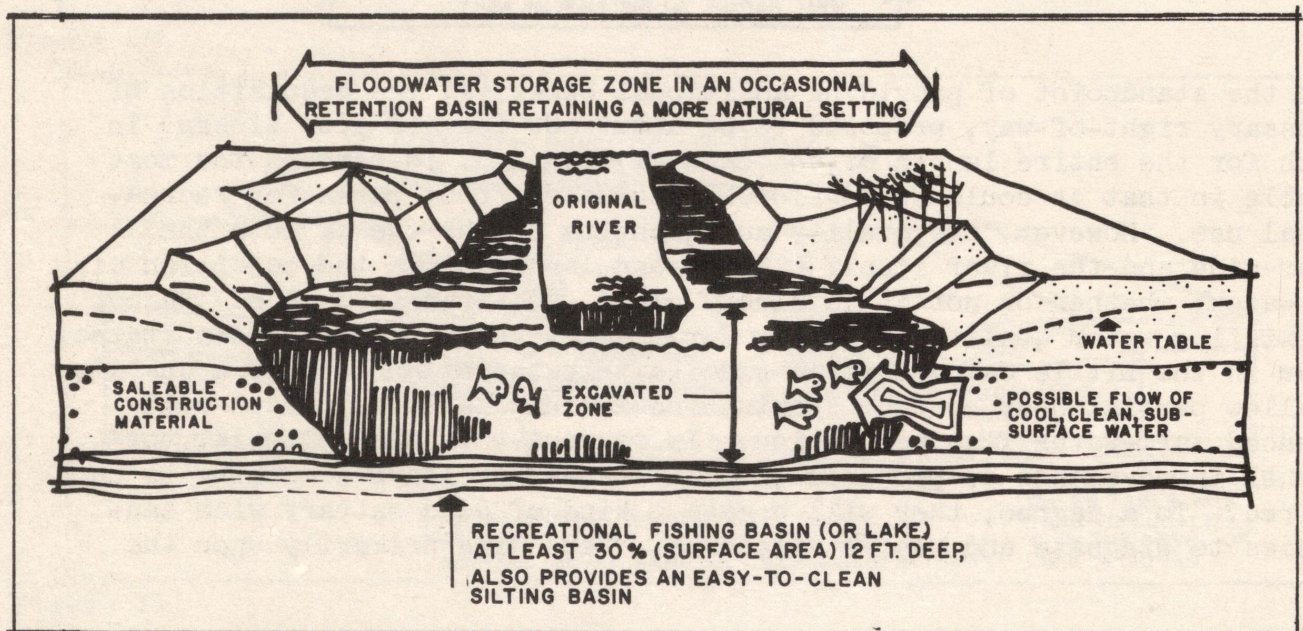
From the standpoint of providing additional benefits, the acquisition of necessary right-of-way, proposed to be about 600 feet (2 city blocks) in width for the entire length of the channel widening, is perhaps the most notable in that it could be developed into water-front parks for recreational use. However, the quality and quantity of the use of both the river-side and the river itself will depend largely upon the condition of the water; whether or not it is clean, clear, and free from odor. Based on existing water quality criteria, detailed by regulations of both states, water in the Little Calumet river and its tributaries must be of a quality to allow partial body contact sports, and in Indiana to support a well balanced warm-water fish population. In respect to these criteria, the channel improvements as proposed in both states may leave something to be desired. To a degree, they will create a kind of dead estuary with tendencies to stagnate and become malodorous. Depending primarily upon the

runoff flow from the rest of the river basin, the channels may only occasionally be flushed with enough water to remove stagnancy and debris, which would still not necessarily make it clean and clear. Therefore, to adequately meet the water quality criteria set, new devices may have to be found to augment the river's flow.

Upstream retention reservoirs on the river tributaries could potentially mitigate low-flow characteristics as well as assist in controlling flood waters. Excess water collected during rainy periods could be released at certain times during dry periods to help flush the channel. Controlling some of the excess water upstream would also allow for smaller-sized flood channels since they would have to carry less water at one time. Another, and perhaps more promising possibility lies in altering the Little Calumet river into a variation of channel and reservoir. Flood water drainage would be similar to that of a continuous wide channel, but with excess water swelling into a series of reservoirs interspersed along a smaller channel to be held until drainage could occur. Involving only slight modifications of planning to date, this kind of river alteration, cross-sectionally shown in fig 12, could provide important advantages: keeping the reconstruction of much of the river's length to a minimum and thereby reducing the extent of bridging needed to span the river, increasing the amount of land available for park space within the right-of-way, potentially improving water quality by tapping underground aquifer reserves to flow into the deeper reservoirs, and providing a possible house-keeping device in the form of natural settling basins for the collection of siltation. Furthermore, if the reservoirs could be built over sand and gravel deposits, they might yield marketable construction materials and their possible supply of cool underground water could be instrumental in the maintenance of fish populations, a criterion of the water quality standard set for the Little Calumet river.

Other reservoirs or lakes located near but separated from the river channel could be equipped to store water and have built-in controls to supplement channel flow. In this respect, several water-filled "borrow pits" from which soil was extracted for highway construction might be used; some could

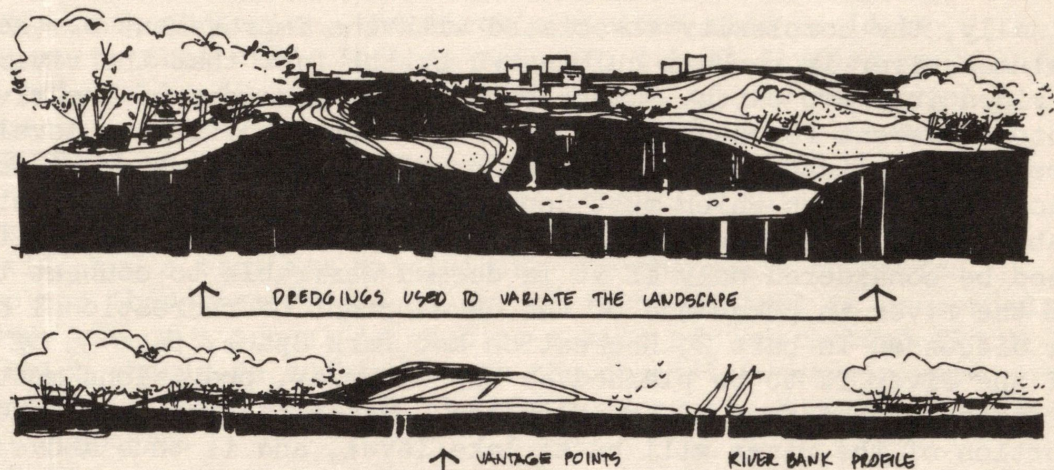
Figure 12



be directly incorporated into the river's variation. On the other hand, many of these pits contain clear underground water and could be developed and maintained for specific purposes such as for swimming or fishing, leaving those reservoirs better equipped to handle runoff water as the more integral parts of flood control.

The Little Calumet river project, whether it employs strict channelization or a more sensitive variation of channel and reservoir, implies a number of factors that need be considered. Primarily these are disposition of excess dirt, maintenance of the river channel, and provisions for changes in water level.

Disposition and use of excess dirt will depend upon the amount created and the places to which it can be transferred. When added to the entire disposal needs of the highly industrialized-urbanized Calumet region, economical disposition could pose a problem. However, some of the dirt from the excavation could be applied to the nearby riversides for a number of environmental purposes. It could be used to variate the landscape and create a river setting with scenic viewpoints, provide sound and wind barriers, screen disturbing elements such as heavy industrial operations and highways, or simply to shape visual reliefs in highly built-up areas. Hence, disposition of excess dirt by careful application to the landscape could add considerable interest to the river environment, and if calculated by design, could effectively use a major part of the dirt that would otherwise have to be transported elsewhere.



Maintenance of the river channel will be principally affected by erosion and deterioration of its edge, and by siltation. Agitation of the waterway, especially by recreational navigation, will require the application of some form of bank-cover, such as grass, rock or concrete to deter erosion. Such treatment could be a combination of architectural walks, docks and terraces, indigenous grasses and trees, or special kinds of cover selected for their durability. Runoff from soils denuded at construction sites or by improper farming methods will continue to deposit a certain amount of siltation into the river channel. Most of this could be arrested by the established land conservation goals if properly enforced and applied to the entire river basin. Even so, the runoff from both rural and urban

areas cannot be controlled to the extent of clearing away siltation entirely; in which case, the settling basin-reservoir may prove to be a more economical and desirable device for collecting and removing excess siltation, than the redredging of the river's entire length.

Cyclic changes in the water level will also affect the river's maintenance. Although backup water will normally be about 10 to 12 feet below ground level along most of the riverside, Lake Michigan can be expected to fluctuate on a basis of $2\frac{1}{2}$ feet above and below the average lake level which indicates a total change of about 5 feet. This is particularly important in figuring the minimum water depth for navigation, in determining the amount of bankside that will be affected by agitation, and in relation to the aesthetic and design considerations of riverside facilities. For instance, as much as 5 or 6 feet of vertical bankside, once covered with water and subjected to agitation, would later be exposed as the water receded from its high point to its low. This could cause a relatively large part of a flat-sloped bank that might otherwise be used for recreational purposes, to be either covered with water, or with fine silt deposits at the water's edge. Steeper banksides could remedy much of this problem where physical contact with the water's edge is not so necessary. Areas that are planned as places to allow body-contact, should be given special consideration in order to minimize the affects of cyclic changes. Such areas along the bankside could be given edge treatments that are durable and easily cleaned. Other places could actually float upon the river providing a variety of facilities for water recreation and related purposes.

Finally, the complexity associated with the improvement of the Little Calumet river is perhaps culminated by the fact that the river is actually divided into two parts. These parts drain portions of the river basin into different receptacles containing water at different levels. This greatly complicates the construction of a regional waterway for recreational navigation which must depend upon backup water to maintain a navigable depth. Consequently, factors concerning water level differences need be considered only if it is deemed desirable to connect the two parts of the river in pursuance of the development of recreational navigation as discussed in part 2, Recreation and Park Space, page 33 of the report. If the river is to be planned as one waterway, provisions must be made for a difference of from 12 to 18 inches. Water backing up in the Indiana portion of the river will be at lake level, and is thus above the water in the Illinois portion of the river leveling off roughly with the Calumet-Sag channel. Some type of dam and lock control will be required to negotiate the level change and control the discharge of lake water thru Indiana into Illinois. At present, water from Lake Michigan is discharged thru "in-flow" locks at the O'Brien dam site, the head of the Chicago river, and at the head of the North Shore channel. Thus, the particular operation and design of the Little Calumet river control will depend upon further lake depletion allowances determined by state and federal authorities. Placing the waterway control near the Illinois-Indiana state line, would put it in close proximity to some of the highest ground along the river's bed. In addition, this would help satisfy a need for an assurance that flood water will not overflow from one state into another, a seemingly important political consideration that has influenced Corps planning to date.

Aside from the possibilities described above which deal with the physical shape and size of the river, a tunnel device for diverting water into Lake Michigan may provide the most assured method of satisfactorily handling flood waters, now and in the future. The potential of tunneling is perhaps greatest when used in combination with the river improvements already discussed, although tunneling could be an alternative to them. Conceivably tunnels could replace the need for a channel to drain runoff from the river basin, except as needed to carry local water to a tunnel inlet.

The principle of tunnel diversion for storm waters is not new. In fact, a system for Thorn creek in Illinois was proposed by the Northeastern Illinois Planning Commission in 1966 (Technical Report #4), and an extensive tunnel project for the handling of excess storm water and sewage is presently being posed for construction by the Chicago Sanitary District. Construction techniques rely primarily upon the mole method of tunneling. The mole has been instrumental in the construction of the Bay Area Rapid Transit Lines in San Francisco, and has recently been employed on the Lawrence Avenue sewer project in Chicago. Costs have not yet become comparable to conventional open channels, but on the other hand, large open-face operations invariably result in a number of disrupted activities and inconveniences. Disputes and compromises often lead to a considerable loss of time and inflated costs. So if a value could be placed upon these "non-tangible" factors, the initial cost of the tunnel device might be more favorably compared with the cost of open-face operations.

However, in its present condition the river bed could not escape improvement if only to carry localized runoff. With the inclusion of recreational navigation as a planning objective, the river's minimum size would be basically determined by that use. In this respect, tunnel devices would need be employed only to handle flood waters in excess of the carrying-capacity of a recreational navigation channel. As previously discussed, the proposed wide flood channel could be reduced to the minimum required for recreational purposes by redistributing the channel's holding-capacity into a series of reservoirs and at the same time adding another source of recreation and a tool for maintaining the channel's condition. Tunnels could replace these reservoirs as far as flood control is concerned; however the primary use of a tunnel is seen as a kind of "guaranteed flood control device" which should be combined with the channel-reservoir variation to help encourage development of the river expressly for recreation and environmental purposes.

The really significant advantage of using the tunnel device in the Little Calumet River basin, is for the improvement of water quality. Tunnels are an answer to low-flow augmentation and the regeneration of the river for all kinds of recreational uses. One of the most undesirable ingredients in the make-up of the river basin is its physical flatness. Most parts of the river system will scarcely move at all. However, water could be pumped into the system from Lake Michigan to augment its flow. By using tunnels potentially devised for flood control, water discharged into the lake during rainy periods could be extracted during drier periods simply by pumping it out of the tunnel and into the river as shown in fig 13. The amount of water supplied must be sufficient to cope with and maintain water quality high enough for body-contact, especially during the

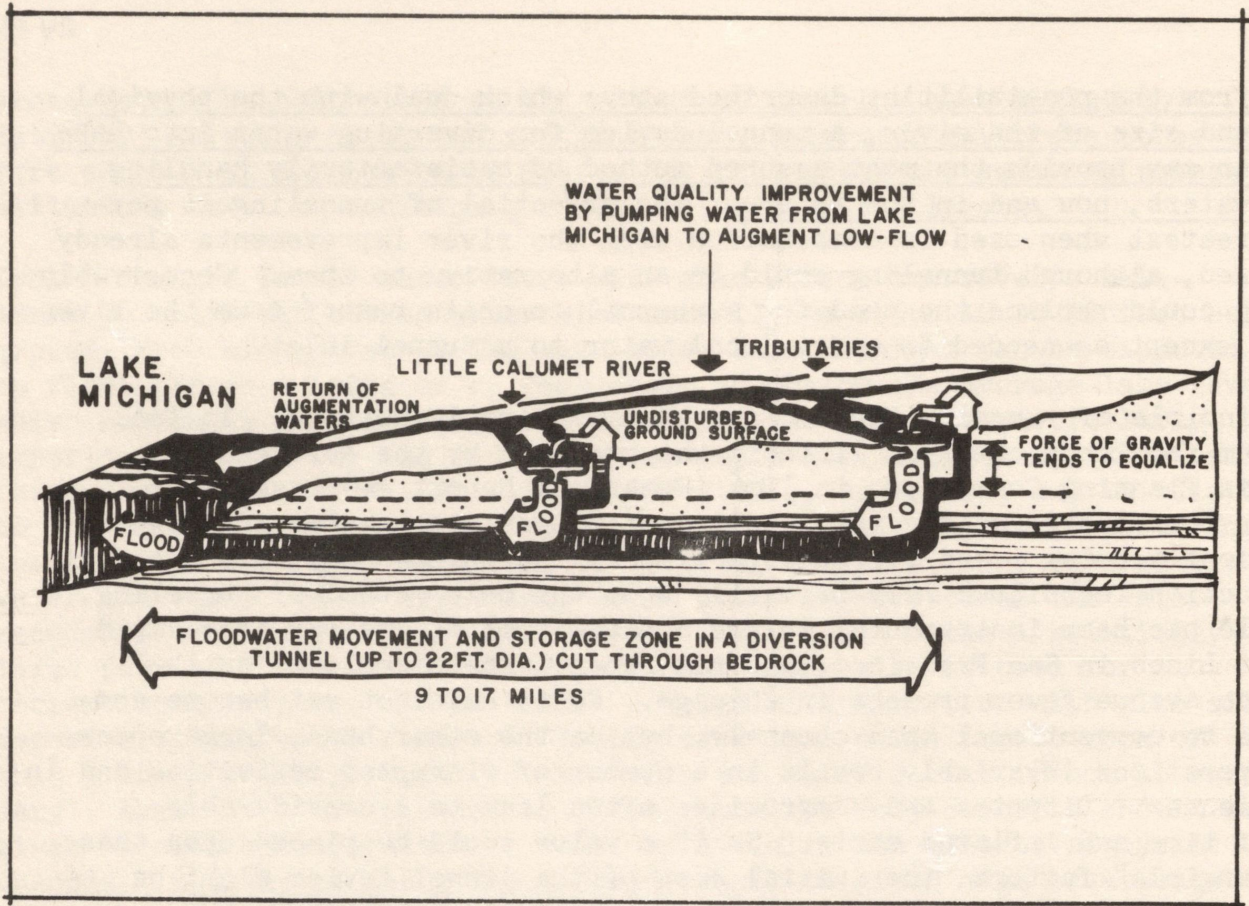
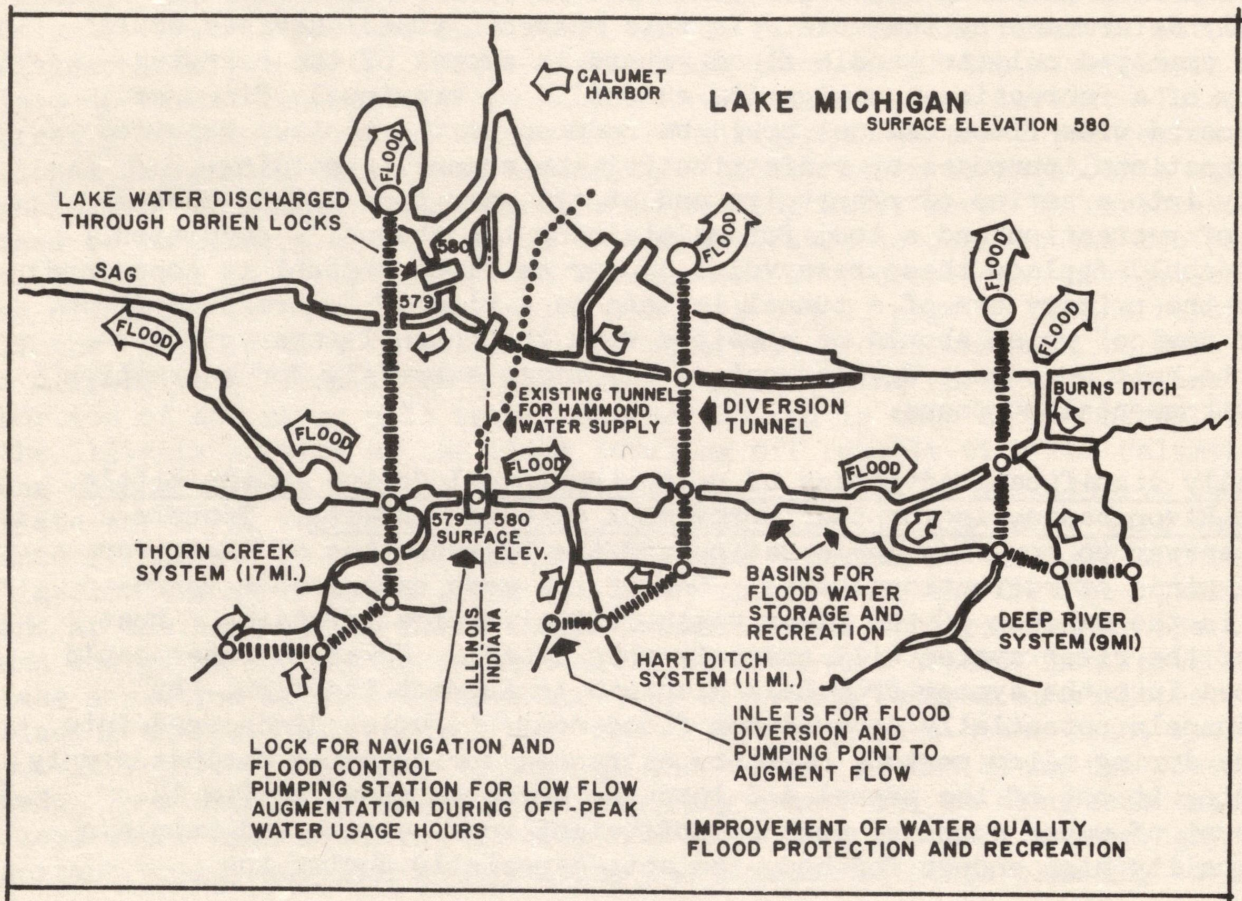


Figure 13

Figure 14



summertime's peak-use. This need will indicate the size of the tunnels to be employed, whether they be specifically designed for that purpose alone, or whether they be dual-acting tunnels originally designed to carry flood water.

Potentially, tunnel devices for the Little Calumet river basin could entail 35 to 40 miles of underground construction. Possible systems for Thorn creek, Hart ditch and Deep river are diagrammed in fig 14 and are shown in combination with the channel-reservoir variation. Although these improvements will not produce a great reduction in the amount of earth to be excavated, it will be measurably less than that of the original channel proposed. In addition, the mined material from the tunnels, normally constructed thru bedrock to reduce the need for costly lining, could be sold for building purposes or in some cases for the mineral content. The physical extent of the systems shown, measured in miles, suggest other possible uses for the tunnel devices, such as providing water supplies for inland communities and industrial parks, or for farm irrigation. All of these factors, disposition of excavated and mined material and especially those related to multiple uses, merit further consideration.

Planning objectives concerning recreation and new living spaces are inevitably tied to the quality of the Little Calumet river. By examining the application of the channel-reservoir and tunnel devices in this respect, it is apparent that the channel-reservoir is of considerable value in developing the river's aesthetic image and recreational benefits; and the value of the tunnel device is just as obvious when employed in combination to provide a positive solution to low-flow augmentation and a permanent stand-by assurance for adequate flood control. These devices are therefore integral mechanisms needed to maximize the river's use in terms of its environmental and recreational potential and to improve its quality. They are in tune with the overall environmental improvement of the surrounding area, and the benefits derived from their varied performance should receive careful evaluation by the federal, state and local agencies dealing with the river and the river basin.

RECREATION AND PARK SPACE

A map reconnaissance of the four-state Lake Michigan region clearly indicates the locale of its major open space preserves and parks. Great areas of northern Wisconsin and Michigan are thusly protected along with significant, although less extensive, lands in southern Illinois and Indiana. However, these recreation and park spaces are quite distant from the main centers of population, and even though notable recreation corridors are developing closer into and around populated centers, they are basically planned for longer vacations and weekend activities. In relation to the metropolitan areas of Milwaukee, Chicago and Gary, the most significant of these corridors are those along the Illinois, Fox, and Kankakee rivers, see fig 15.

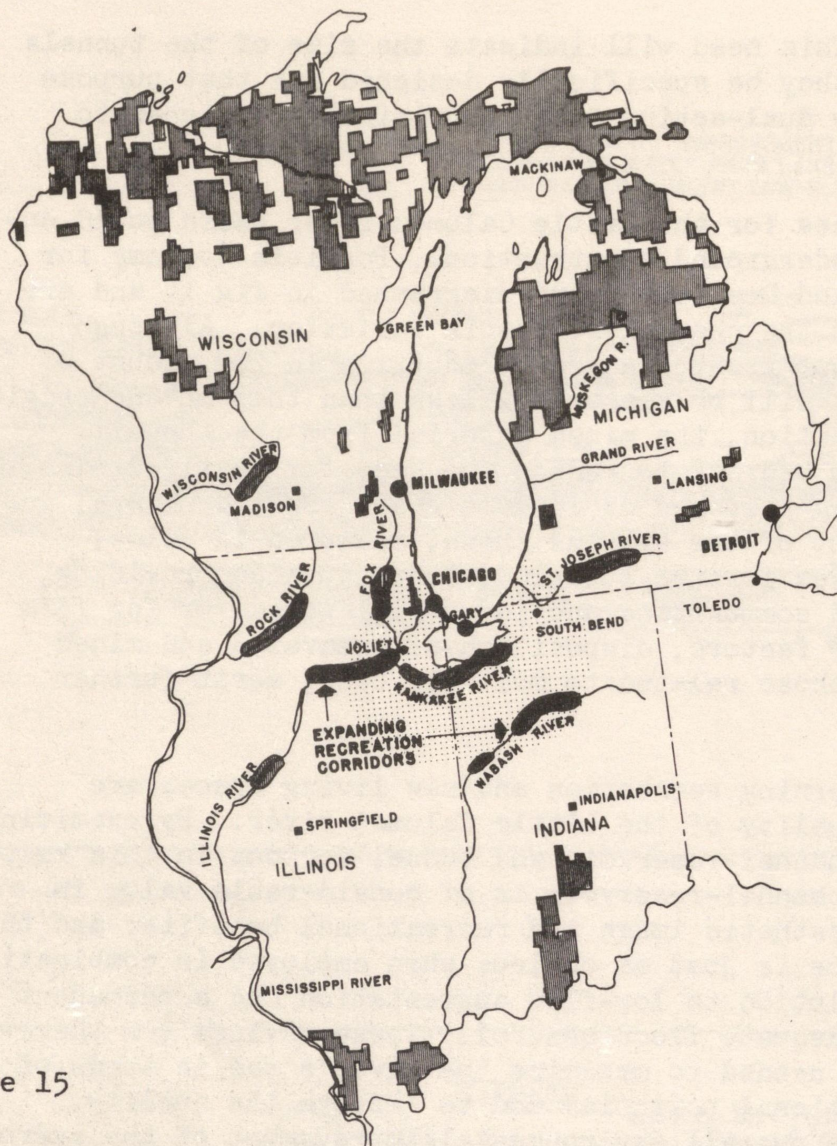


Figure 15

Metropolitan development of close-at-hand park space can perhaps be best exemplified by the progress being made in the Cook County forest preserve system. It is developing recreation areas conveniently close to many homes in the Chicago metropolitan area. A good sample of this is the forest preserves along the Des'Plains and North Chicago rivers. Their recreational and scenic realities resemble the possible qualities of the Little Calumet river. Being strategically centered in the developing populated area of the Calumet region, the quality of the Little Calumet river could have a vitally important influence upon the future of the entire river-related area. Gaining additional park space of significant proportion would enhance the functional use of the river for recreation and pleasure. Furthermore, it could greatly enhance the surrounding area as a place to live.

In view of the fact that in the Calumet region very little land was preserved during past urbanization, gears will have to be shifted in order to try and gain the land and facilities needed to meet emerging recreational demands. Technology has increasingly made work easier, hours shorter, income higher and leisure time longer. As a result people now expect to have at their convenience a wider range of facilities to further develop body and mind. If the Calumet region is going to sustain the

population increases expected, it must be able to provide these facilities. Moreover, they will have to be incorporated into new places to live. Recreation facilities and park spaces could compliment these new places and help counter-balance existing city areas, if they are generous enough to support activities now and in the future without over-taxing and ruining their amenities. Thus, in consideration of the circumstances prevailing in the Calumet region, mainly centered around uncoordinated and piece-meal efforts, development of recreation and park space on a regional basis is seen as having a most significant influence on the improvement of the region. Such development should be considered as a major planning objective.

A major shot in the arm for this objective could lie in the regeneration of the river as a regional water-front park with an assortment of facilities. In an urban area lacking major recreation bordering on Lake Michigan, it seems only natural for the cities to turn their fronts and attention to the river's redevelopment. For planning purposes, the greatest asset of any river lies in its physical length which can be developed to distribute a great number of benefits to an even greater number of people. The real value of this asset will depend upon the scale of its development. Planned at the regional level, facilities could be equably distributed, over-all activities and capacities could be regulated, and a reasonable standard of aesthetic quality could be assured.

In 1967, the state of Indiana (Report #16) estimated that there were over 70,000 boats within a 50 mile radius of the Little Calumet river. If the economic and physical activity of these boating enthusiasts can be incorporated with areas for fishing and swimming, and for facilities to attract the main cross-section of the population, the Little Calumet river could become an environmental magnet capable of generating economic vigor to the entire region.

Boating can generally be considered the main recreational attraction of any waterway. This is especially so if the waterway is connected to Lake Michigan. Although the Corps of Engineers has included recreational navigation in their more recent flood control plans for the Indiana portion of the river, many additional boaters will be inclined to use the river if they can navigate its complete length. If this were so, boaters could travel from the Calumet-Sag channel in Illinois to Lake Michigan in Indiana. While travel from there upon Lake Michigan is generally limited to owners of larger craft, 18 feet or greater, those boaters could return via the lake's coastal waters to Calumet harbor at South Chicago where-upon connection could be made back to the Sag channel. Development of the river as a thru-waterway would thus provide a regional recreation utility for a wide variety of boats including lake cruisers, speedboats, catamarans and houseboats, not to mention canoes, paddleboats and sailboats in localized areas. Furthermore, excursions down the Calumet-Sag channel could eventually reach the Mississippi river thru the Illinois waterway or could be routed up the Fox river west of Chicago. Once boaters are upon Lake Michigan, Chicago and any other point on the Great Lakes chain would be within reach. Connected to both the Illinois waterway and Lake Michigan, the river would thus become part of an expanding network of pleasure-craft routes that could comprise one of the greatest

recreational systems in the country. In addition a refreshingly different means of urban movement could lie in the development of a water-taxi service. It could provide transportation between points of residency, water-front businesses, and recreation up and down the Little Calumet river or to points more distant. Passenger transit could be yet another benefit related to the value of a thru-waterway in the Calumet region. If such a waterway can be included in the over-all planning of the river now, its development would help vitalize not only the river but a substantial portion of the region as well.

A channel designed for recreational navigation must provide for certain depths and clearances. For example the Fox river system in Illinois suggests a 100-foot channel width with a 5-foot minimum depth, and bridge clearances of 100 feet horizontally and 15 feet vertically. While the Corps' present flood control plan allows for a 6 to 10-foot depth, the channel size required for recreation rather than flood control will depend primarily upon the projected traffic volume to be allowed and could vary anywhere from 50 to 150 feet in width. Service facilities will be determined by the various types of boats using the river. Most boaters will require launch facilities, fuel, reststops and information while others may require overnight dockage, repairs, groceries and bait. Safety is also a factor for consideration. Regulating the river for its safe and best use may require some form of water-zoning in order to avoid conflict between cruising boaters, fishermen and swimmers. Buoys, daymarkers and warning signs will be needed as well as places of refuge for boaters during storm periods. Moreover, provisions to insure clean water and pleasing surroundings are a necessity for pleasure boating and most other activities associated with the river. This will mean achievement, then continued enforcement of the water quality standards set for the Little Calumet river along with the beautification of the riverside.

As already recognized by water quality regulations for the Little Calumet river in Indiana, fishing is an important form of family recreation that should be included in the river's development. As population has increased, there has been a corresponding decrease in convenient and quality fishing areas. However, this trend could be reversed by the addition of great new areas along the river as built-in parts of a variation of channel and reservoir, previously discussed on page 26. By considering a few additional factors now, the ability of a reservoir to sustain a fish population the year round could be included in planning. At least 30% of the water surface should be 12 feet deep or deeper for cool temperatures and winter protection. There will also be a need for shallow areas for spawning as well as decent shores, or floating decks from which to fish. Applied to a number of areas up and down the river, fishing would be yet another benefit and a popular activity attracting other sportsmen in addition to local users.

Further development of the river to provide areas for swimming should receive careful attention. The importance of this activity in the Calumet's urban area cannot be underestimated. It is the top ranking water-related recreation in the nation today and is gaining in popularity. Swimming, to include wading, diving, sunbathing and beach games, is a favorite of

all age groups, and an activity that the entire family can enjoy rather inexpensively. Along the Little Calumet river, swimming places could take the form of quiet out of the way lagoons or river inlets with beaches. Additional facilities might include floating arenas and decks for sunning and bathing, distributed according to need. During the wintertime, these "summer-spots" could become outdoor plazas for ice hockey, skating and racing, or arenas for winter sporting events. Because the river is so centrally located, such areas would be accessible to a great portion of the local residency. Planned areas that can be used for swimming and also winter-time activities are therefore seen as major recreational benefits that should be incorporated into the river's improvement.

Water-oriented recreation could be fortified by the development of recreation spaces on the adjacent riversides. Land acquired for right-of-way to improve the river channel will provide continuous riversides that could, with little further effort, see the development of park space suitable for pedestrian jaunts, bike riding and other activities. By adding land that is presently open to existing parks and land already pledged for park space, the river setting could be enlarged to include areas generous enough for camping, picnicing and organized sports, as well as space for building landforms to allow tobogganing and sledding during the wintertime. While large parcels of open land exist along the river, primarily in its flood plain, their gain for park use is questionable. Flood plain land could be legally kept open for the public's good, but this form of protection to date has been only slightly used. A study was conducted in 1964 by the Purdue-Calumet Development Foundation concerning the value potential of building on the Little Calumet river's flood plain once the possibility of flooding has been eliminated. With this in mind, planning for the preservation of some of the flood plain for open space and recreation must enter the picture in a serious manner.

Even if sizable portions of the flood plain can be gained for public use, their development along with the rest of the river area will only begin to alleviate the over-all shortage of park space in the region. Planning authorities suggest as a guide, 10 acres of regional parkland per 1000 people for close-at-hand use. Accordingly, at least 10,000 acres of parkland are needed today, and perhaps as much as 30,000 acres should be readied for park use by the end of the century. If the inventory of regional park space could include the river project, given a 600-foot right-of-way in both Indiana and Illinois extending some 30 to 35 miles, about 2,500 acres of water and land could be added to existing parks and land along the river pledged for park use. This would provide almost the amount of acreage needed to meet existing demands. Unfortunately, this major effort would only be a beginning in view of the projected needs of the future. More land for regional use will have to be found somewhere and pegged for the demands ahead.

While at present, attention is focused upon the development of the river, it could also be given to the provision of adequate park space for the future. Appropriately coordinated planning efforts could identify opportune parcels of land that are still open or that may become available as land uses change. Further efforts could then direct their protection or

acquisition for present or reserved use. Many lands are presently open in the area outlying both sides of the river, some even in the built-up districts. The biggest problem will be in gaining control over them. According to William H. Whyte, noted writer on landscape planning, the only positive means of gaining control and thus protecting open land today is by acquisition, or at least acquisition of certain rights to the land. Obviously then, in gaining land for the future, an important element is time. Planning should begin now to structure additional park space in the outlying areas to be protected before it becomes too expensive for acquisition. Open space zoning could stave off encroachment for awhile, but some form of positive control must be anticipated whether it be by installment buying, easement purchase, receipt as a gift in return for tax benefits, or by simple out-right purchase. All of these things, whether related to the planning, control or development of the open space, must be coordinated by a regional effort. Only in this way, can a structure be provided to gain sufficient land for park use, at a reasonable and comparably lower price, than land gained by piece-meal acquisition procedures.

If a "color brochure" were prepared for the Calumet region, it might include several outstanding interests, but none are so unusual as the natural formations caused by the water action of the melting glacier. Remaining beach ridges, sand dunes and lake bottom shoals transpose impressive traces of the original landscape to the present personality of the region, which is too rapidly changing into concrete and steel. Aside from the Indiana Dunes National Lakeshore park and some of the Cook County forest preserves, most of these special attractions have already been lost. Some might be rehabilitated, but the few that still remain unmolested are of the most importance, and equally endangered until protection is assured. Their formation, plant and wild-life are of value to the naturalist, and they may still contain scientific information not to be found elsewhere. Not to be considered as anything less than vanishing land-features, their preservation is needed for the cultural benefit of present and future generations.

Future park development in the Calumet region then, could include a structure of outlying lands reinforced and accented by unique land features if action is taken now. Forested areas, marshlands and open fields of prairie are, in most cases, the easiest to include in such a structure. Even areas of sand dunes and bottom shoals are not impossible to get a hold of in certain places, especially near the National park. Development of some of the land could be planned to attract wild-game, given sufficiently large and protected open spaces, natural food and water. In some areas limited hunting of land game could be allowed, while the marshlands and parts of the river's tributaries might see the hunting of migratory game fowl. The possible realization of this kind of recreational benefit, along with adequate park space for future use, is within grasp. It hinges upon coordination at the regional level in order to implement measures to gain the amount of land necessary. If enough open land can be gradually placed into a regional system of parks structured together in some fashion, support for the widest range of recreational activities would be possible. A regional catalog of activities to include hiking, nature exploration, camping, hunting and scenic auto trips, as well as swimming,

fishing and all kinds of boating on the Little Calumet river, would add greatly to the attractiveness of the region as a place to live and work.

Thus, a regional park system incorporating both the Little Calumet river and outlying open space is seen as the most positive way of providing adequate park space for use now and in the future. But perhaps the greatest benefit may actually lie in the aesthetic qualities of natural open space. Quality natural space connotes a sense of permanency which, to a degree, is transferred to surrounding areas. People attracted to these areas by such amenity, may well be expected to continue to live there over a longer period of time. This kind of situation will tend to produce more stable income groups, a steady economy, and a more equitable tax base. By starting with the development of the Little Calumet river and progressing to the development of outlying open space, the formation of a regional park structure would be possible. A structure of this sort in the Calumet region could induce the evolution of a fine living environment associated with the region's continued development and improvement for years to come.

REGIONAL COORDINATION AND COMPACT CITY DEVELOPMENT

One of the major conflicts affecting the status of regional development is the lack of an established over-all authority to effectively deal with the environmental issues at hand. While planning objectives should develop a specific function, or best-use for the development or redevelopment of land areas, the design and implementation of these objectives must be based upon organized and coordinated regional efforts. Besides the undetermined fate of the Little Calumet river in terms of its improvement for environmental purposes, and a disregard for landscape specialities and cultural sites, there remain uncoordinated and often self-defeating efforts to gain scarce parcels of land for building when at the same time they are being sought for recreational development. Add increasing demands for new living facilities and better service and support structures, and the need for an organized coordination of all efforts throughout the region is the most important consideration facing the Calumet environs.

However, organization of the Calumet region to design and control its environmental situation can be more simply discussed than implemented. Jurisdictionally divided into some twenty townships, four counties and two states, see fig 5, disunity is amplified by political bickering and lack of understanding. The individualistic attitudes of the many towns and several cities have led to a proliferation of separate agencies. These agencies, whether for planning, transportation, or community development may well be aware of existing problems, but acting separately they only postpone effectual action regarding the many interlocking conditions to be dealt with at the regional scale. Networks of utilities and transportation, systems of education, health, fire and police protection could all be more effectively and efficiently operated on a regional basis. Such an operation will require direction by some form of consolidated authority. This could be by delegated authority in a regional government or agency where localities retain individual sovereignty, or by a complete revamping

of the traditional ideas whereby a single entity is formed to correlate and manage regional enterprise and resources.

The prerequisite step is a comprehensive planning body authorized to act on the part of all localities--rural village, town, city, and industry--in establishing an imaginative and workable design. This will need to be done as soon as possible to arrest the current environmental deterioration and begin revitalization. Meanwhile, strict zoning procedures and law enforcement could control use, maintenance, and such aberrations as pollution, over-building and incompatible land uses. Soils suitable for food production could be zoned for food and fiber until more positive measures of conservation could be established; obvious areas of special features and open space could receive similar attention. At the same time an effort could be made to consolidate some of the transactions of the various agencies now operating separately. In addition, the large power blocks affecting the development of the region, most notably the steel industries, should be apprised of the critical importance of reclaiming control of the environment.

At present, there are two main planning agencies dealing with the development and improvement of the region. One is in Indiana and the other is in Illinois. They are the Lake-Porter County Regional Plan Commission, and the Northeastern Illinois Planning Commission, currently working in coordinated joint sessions. Their efforts are indeed commendable as they are dealing with the bigger context in which the Calumet region is located. However, there is still a need to deal specifically and responsively with Calumet problems given a plan, and authority, to do so. These problems mainly concern industrialization and urbanization. Concentrated as they are in the Calumet region, it will require a more intensive study and planning program to accomplish the least significant improvement. If the two agencies mentioned above can effectively coordinate planning and establish some authority to achieve their objectives, perhaps the first step towards improving the region has already been taken. However, political division between the two states may be a hard obstacle to overcome. In this case, formation of a bi-state planning and development foundation for the Calumet region could be a possible answer. By pooling funds separately allocated, federal authorities and state agencies could encourage more positive action on a regional basis; or they could help establish a new authority with the necessary legislative power to fund and implement the planning objectives needed to develop the environment of the region.

The tools with which to structure development of the environment lie primarily in the major investments of federal, state, and local tax funds for capital improvements. Once these improvements are made, further development is directly affected by them. Thus, they become elements of capital-structure; the essential functions of the urban anatomy including all publicly amortized lands and buildings such as for education, government and recreation, networks of movement, and utility systems which guide not only urban but total regional form. Manipulation is based on the fact that they are paid for by tax levies and are therefore the most likely to be controllable. Their scale, degree of permanence, and magnetic effect are such that they constitute a powerful influence upon

the remainder of the urban fabric. Consequently, elements of capital-structure generally serve as a framework for further infilling (building) and development in the private sector.

While the publicly owned and controlled interstate expressways running thru the Calumet region exemplify elements of capital-structure, for all major purposes, the use of these elaborate roadways to help improve and organize part of the environment of the region has been virtually lost. However, the proposed alteration of the Little Calumet river now provides a most opportune chance to begin real development. With the public investment of tax funds needed to improve the river and deal with the flood problem, a publicly-owned river--an element of regional capital-structure--will come into existence. Accordingly, the river's scale, its connotation of permanence, and its potential magnetic attraction will comprise important design substance for the planning and direction of city development across the region.

While significant elements of capital-structure such as the river, can provide an organizing framework for development, the specific use or planned function of land to be subsequently developed should be governed by underlying soil characteristics and natural processes. These factors identify conditions that make land safe and economical for use, or vice-versa. Only by accident, or common sense guesses has land use corresponded to the underlying suitability of soils. In most cases, speculative pressures are the chief determinants of use. Encroachment upon the Little Calumet river's flood plain is only one indication of the magnitude of those pressures. Thus more and more buildings are placed on soils not well suited for that purpose, nor safely situated in respect to the natural processes of the river's over-flow. Another mis-use of land can be described by the desecration and modification of special landscape features. Sand dunes have been mined and marsh areas filled in. Aberrations such as these could have been tempered by organized enforcement of existing laws and coordinated management of the river area and other special resources, but little has been done in that regard.

County conservation agencies have now compiled sufficient data on soil characteristics to help guide land planning and development in the Calumet area. It was found that the soils best suited for agriculture and recreation are near to and closely parallel the river. Soils well suited for building are also found parallel to the river, but further back usually in conjunction with high ground like that of the old beach ridges. Therefore, particularly satisfactory relationships are possible for linear belts of housing to be located parallel to the amenity of the river. Advantages are that housing can be at a close proximity to recreation and open space. High density, high rise housing could also offer very desirable views.

Much of the land in the Calumet region has already been encumbered with incompatible usage. Restoration and redevelopment of these areas are not beyond approach. Such could be accomplished by taking advantage of the fact that specific uses for land often change. Carefully organized efforts could regain land as change occurred while focusing attention upon other encumbered land to encourage change in terms of a better use. It is a

matter of being able to identify potentially redevelopable land and in some way gaining control of its use. Subsequent rehabilitation may then entail forestation or grassing as indicated by underlying soil conditions, or the building of enclosures for urban living.

Virgin land in the Calumet urban corridor is becoming extremely scarce, especially close to centers of employment and activity. Furthermore, the best use of such land may in general be categorized in terms of park space needed for long-term public benefit in the form of recreation and pleasure. At the same time, the need for new and inviting places in which to live relatively near the major centers of city activity and job sites is an ever increasing one, and one that can no longer be ignored. Population is on the increase, and it must be accommodated with more convenient places to live instead of fewer. More and more people have had to locate at the urban fringe and to rely solely on the automobile for transportation. This has led to a proliferation of auto-oriented aids lining the roads from suburbia to city center. Main highways have evolved into land consuming and expensive expressway networks. Each day the strangulation effect of auto congestion becomes more apparent, and will most likely continue to increase until the present trend of city sprawl is tempered by some counter-form of development. Such a measure may well exist in the form of more compact city parcels. This kind of development would allow the placing of projected new growth within present urban patterns and built-up areas. Densities could be increased, transit systems added or improved, and auto congestion eased. At the same time, many acres of dwindling open landscape and food-producing land could be saved.

Assets which agreeably influence more compact living in the Calumet region, are embodied in the concentration of job opportunities along the lake front and the easy access to the cross-region interstate 80 expressway as well as to other established lines of transportation, communication and utilities. The additional possibility of a regional river-park along the Little Calumet river for close at hand recreation and open space, greatly enhances these basic assets. People seek the natural amenity of a river setting, the pleasantness of a water-body and the activity upon it, the views and vistas of open park areas, or the intrigue offered by the treed edge of a forest preserve. Given reasonable access to these amenities, a good number of dwellings, if well designed, could be arranged together in close proximity as exemplified by two or three-story town houses, terraced-garden apartments, or high-rise condominiums. Such arrangements could take the form of what is known today as residential clusters, or they could be totally new communities. Some areas might see entirely new self-sustaining mega-structure communities which incorporate everyday shops and services into a variety of housing facilities and social activities. In a sense, compact city development could conceivably appear upon the face of the region as interstitial parcels of new city filling appropriate intervening spaces in existing development and unifying urbanization into a regional whole; a regional city interwoven with river and natural landscape. In this context existing urban areas could also be enlivened and kept vital and many new opportunities to live closer to job sites and urban centers would be realized.

Higher density city development has important advantages. First, concentration of facilities is more efficient since it places conveniences, activities and specialties within a shorter range of a greater number of people. Second, a more closely-knit population can support an increased variety of facilities, and activate a more dynamic and qualitative living situation. And third, concentrated areas, as opposed to the typical sprawling suburb, could reduce construction and operation costs for both private developments and public improvements. With city enclosures placed closer together and designed as integral parts of a whole system of service and support components, things such as roads and transit, power and water supply, sanitation, police and fire protection, would physically have to cover much less area and could be better coordinated. Thus, they may well be less expensive to build, and certainly less expensive to operate. Furthermore, with today's technology and design capabilities, existing economies and efficiencies could be considerably enhanced. Given some of the projected new systems being developed to deal with certain city functions and building needs, the result could be better living conditions for still more people, and especially those at lower-income levels.

If population should increase as expected, tripling present figures, living facilities will be in need of continual improvement on a mammoth scale. Thus some form of control is needed now to effectively take and use land in a way that will afford the greatest improvement of living conditions. As before mentioned, there is a way of balancing urban areas with natural landscape; and a means for incrementally phasing city growth in terms of supply and demand has been suggested. In order to effect significant improvement in this respect, planning and organization must occur involving the cooperation of all of the separate and individual urban entities, industries, counties and states which jurisdictionally comprise the Little Calumet river basin-related region.

Once this cooperation, planning, and organization is accomplished and positive steps are underway to deal with recreation and housing, more articulate land planning could focus upon unique environmental additives; things that help establish a regional personality. Special parts of the region functioning in this way would increase the cultural value and attractiveness of Calumet living. Skillful design could fashion a sense of identity by planning areas to be used specifically for land marks or vistas; by creating or maintaining the individual characteristics of natural, ethnic and historic areas; and by designing new segments of the cityscape with individuality and perhaps a single degree of uniqueness. Comprehensive design could encourage a planned diversity of sub-environments, activity generators, and passive areas for solitude and thought. Ultimately, there would exist a regional distinctness; an indigenous character that becomes the personality of a total environment, and a part of the people living there. Carefully considered planning efforts that go beyond those basic ones dealing with the river and the need for more recreation and housing, could thus help establish a tangible sense of belonging; something that is tremendously important to personal identity, permanent settlement habits, and stable community situations.

It is conceivable then that implementation of a detailed program of planning objectives could achieve a relatively permanent and harmonious use of most of the land in the Calumet region. This may well reflect the already mentioned patterns of agricultural, industrial, and urban development. If urban growth gradually fills in its pattern of development, the URBAN CORRIDOR will eventually reach a saturation point. With agriculture on one side, industry on the other, and with transportation and recreation down the center, continued growth would be more or less induced to extend the open ends of the corridor. Reflecting the growth patterns discussed in more detail on page 22, this situation clearly points out the linearity and open-endedness of urban development in the Calumet region. The resulting pattern, will have significant influence upon the urban (megapolitan) evolution now taking shape in and around the lower Great Lakes area.

The possible future of the Calumet region challenges and inspires the imagination. The region's potential is one that combines agriculture, industry, city and landscape into a striking new pattern of human endeavor. But the realization of such may depend entirely upon whether or not any ground-work for subsequent improvement is planned into the construction of flood control measures now being studied by the U.S. Army Corps of Engineers, state and local agencies. If these efforts can be used to spark effective regional action on a coordinated and continual basis, the Calumet environs would be one step closer to a more complete and viable regional scene. In general, priorities must be shifted from the planless, short-term, profit-motivated development to date, to a responsible reshaping of the environment thru comprehensive design. Only then can there be a reasonable expectation that expanding and long-term benefits will occur which will desirably influence the standard of living. Nowhere is the time to employ over-all regional design and planning more opportune and overdue than in the Calumet region. A design projection of some basic concepts and ideas to help construct and broaden thinking in this respect, is the subject matter of the following section.



REZZONICO, ITALY bordering LAKE COMO

SECTION 3

DESIGN PROJECTION (Planning Concepts)

Because a human being tends to adjust to the surrounding environment in which he lives and has often helped create, he may not be aware of the gradual changes associated with the deterioration of environmental qualities until it is too late, or a major crisis becomes an awakening omen. Obviously, the flood condition in the Little Calumet river basin is such an omen. Still, the opportunities involved, and the potential benefits of dealing with this problem in a way that goes beyond conventional thinking may not become apparent until some outside stimulus is introduced. This stimulus might take the form of a critical appraisal of the river, or better still, of the over-all situation of the river basin such as that sketched out in Section 1 and 2 of this report. However, all of this will more likely effect real action if related to realistic and innovative ideas for dealing with the many interlocking problems involved both within and outside of the particular localities affected. This is so especially if those ideas could return a high rate of beneficial and long-term improvements.

The inclusion of often side-tracked long-term improvements will depend greatly upon the degree of awareness in their value, now and in the future. The planning concepts developed in this section are intended to show how many of the inter-related benefits discussed in Section 2 could be approached thru planning and management on a regional level. They go beyond present river plans to visualize a river-park with outlying scenic-ways combining into a regional park structure which could help guide the evolution of a regional city. In this way, the three planning concepts discussed herein aim to promote a higher degree of understanding in terms of the possible benefits which might spring from the river basin project; and to some extent, instill a desire if not a demand for the implementation of planned improvements to gain at least some, or a part of those benefits. If this can be accomplished, the degree of local support, both morally and financially, may be feasibly elevated high enough to gain real momentum for improvements of a significant enough nature to see the materialization of a higher quality of living throughout the river-related region.

These proposals represent broad conceptual planning, and are not by any sense of the term definitive proposals which must rely upon detailed design interpretation. They are intended to show the many possibilities, to stimulate interest, and to create an awareness of the benefits that

could result when the river's environmental resources are used to refine and influence man's habitat for both today's and tomorrow's generations.

THE RIVER-PARK CONCEPT (Regional spine of recreation)

The need to gain new areas for recreation and pleasure can be measured by the rising tide of shorter work hours and increasing leisure time. What people will do with their leisure time could, on one hand promote refined human improvements, while on the other, result in catastrophic maladjustments. Thus, what people can do with their leisure time has a direct bearing on the planned use of the Little Calumet river, especially when the impact of the computer generation has yet to be measured in the amount of leisure time people might have in the future. This challenging symptom of the 20th century will many times amplify the needs for various forms of relief and occupation of leisure time in metropolitan areas. The river-park concept is therefore predicated on interpreting the best use of the river in terms of its capability to provide an area for recreation and pleasure within the Calumet's metropolitan corridor. The river is in fact, ideally located for recreation and pleasure amidst a pattern of urbanization defined on one side by agricultural land and on the other by industrial development as shown in fig 16. It is also ideally located to greatly influence new city development. Emerging from reconstruction as a publicly controlled property, it would potentially have the degree of permanence and assured quality to become an attractive part of the regional anatomy, and thus instrumental in the evolution of surrounding new activities and facilities in which to live.

The basic question is how all of this is to come about. While it is desirable to promote the planning and development of the best river environment possible, a good amount of this development will have to spring from and capitalize upon the Corps of Engineers' plan for flood control. Estimated to be in the tens of millions of dollars, the enormity of the cost of dealing with the flood problem in the river basin is explicit indication of what a separately developed river-recreation resource would cost. Therefore, it is imperative that the Corps' plan at least lay the groundwork for future if not immediate development of additional improvements for recreation and pleasure. If this can be done, initial costs could be partly shared, and future development costs would be greatly reduced.

Construction of flood control devices and navigational facilities is basically the extent of the Corps' action. This part of the river basin project will be financed by federal tax dollars. Other parts of the project must be paid for by the localities receiving the benefits. This includes the cost of most of the land on which the project will be constructed, and a good share of any additional improvements such as for recreational purposes, plus assessment for their continued operation. Thus to gain the amount of citizen support needed to provide permanent recreational and environmental benefits, corresponding economic gains must be made evident. Some of these gains could be measured in the number of people expected to use the river area. Other and potentially greater

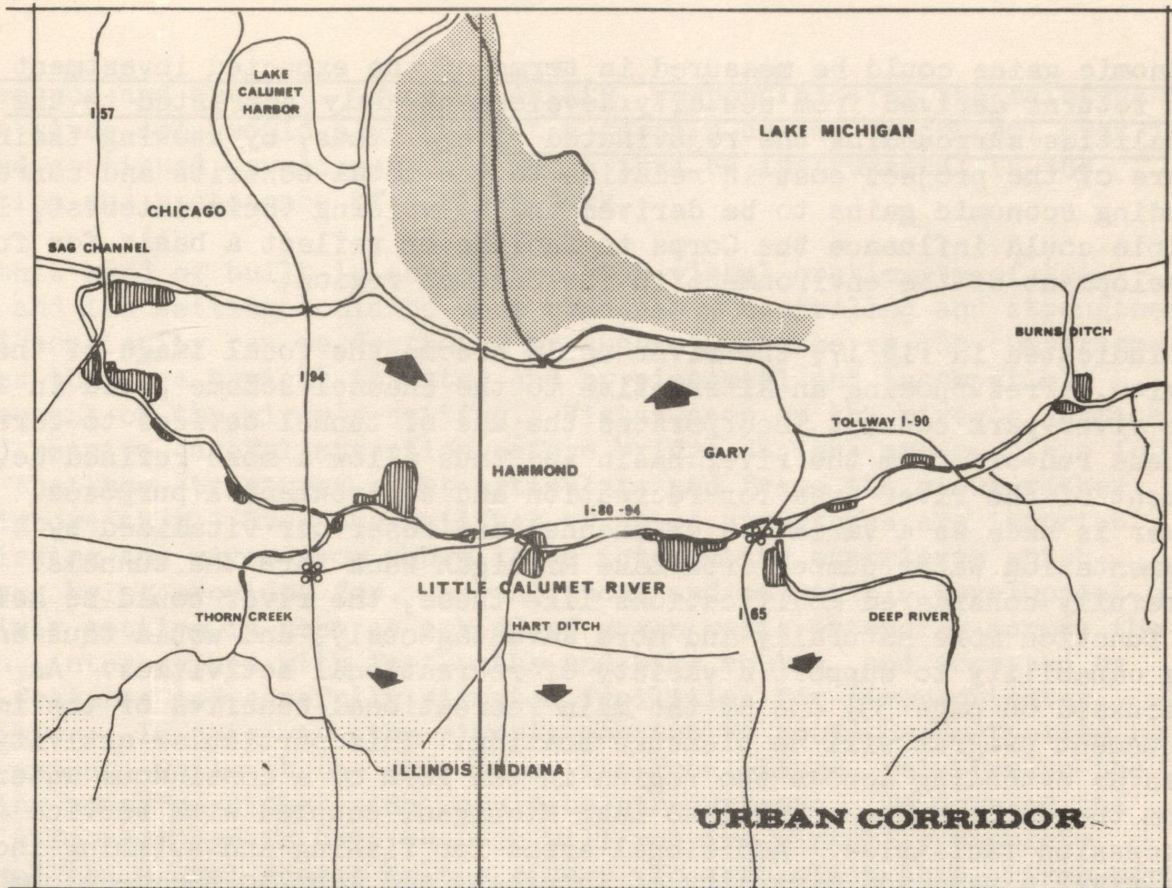
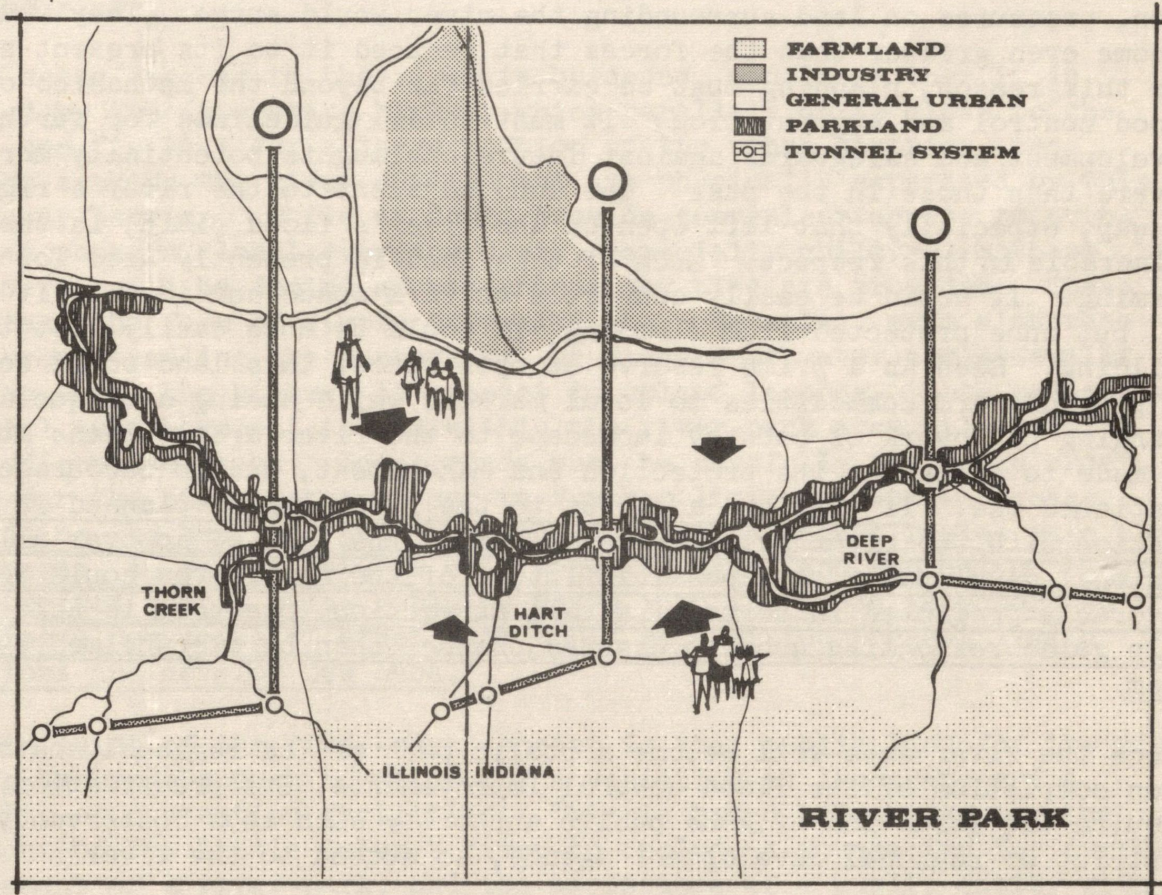


Figure 16

Figure 17



economic gains could be measured in terms of the expected investment and tax returns derived from new city development duly attracted to the localities surrounding the rejuvenated river. Thus, by knowing their share of the project cost in relation to the total benefits and corresponding economic gains to be derived and by voicing their interest, local people could influence the Corps to include or reflect a basis for further development of the environment in the Calumet region.

As indicated in fig 17, the river could become the focal image of the region. Presupposing an alternative to the channel scheme posed in 1955, the river-park concept incorporates the use of tunnel devices to carry excess run-off from the river basin and thus allow a more refined development of the river area for recreation and environmental purposes. The river is seen as a variation of channel and reservoir vitalized by augmentation water pumped from Lake Michigan back thru the tunnels. Thru carefully considered modifications like these, the river could be helped to function more naturally and more advantageously, and would thus enhance its capability to support a variety of recreational activities. As discussed on page 33, one of the main recreational benefits of the improvement program will be pleasure boating. This particular activity is seen as extending across the region in the form of a continuous waterway from the Calumet-Sag channel to Lake Michigan, coupled with service and concession facilities. Additional areas for fishing and swimming increase the river's use, add diversity of interest, and lend to the development of the river's aesthetic qualities.

Simply beginning such improvements would in a sense, place the Little Calumet river in a precarious position. As a developing regional attraction, pressures on land surrounding the river would surge. They would become even greater than the forces that reduced it to its present state. For this reason, planning must be carried far beyond the mechanics of flood control and augmentation. It must entail guidelines for further development and safeguards against future onslaughts potentially more severe than those in the past. The land adjacent to the river's right-of-way, especially that left open on the river's flood plain, is the most vulnerable in this respect. Much of this land is presently used for farming. It could be easily converted to park space and ideally it should be, but once protected from flooding, it could be more easily lost to building. Seen as a primereserve of open space, this land could continue to provide farm commodities to local markets while adding a unique and changing patchwork of country landscape to the river area. Plans must be made to allow for its protection and management, and to encourage its continued use. If the land adjacent to the river can be planned in connection with the river's improvement, and in the form of an over-all regional development, the possible future of the river area could be more favorably predicted in terms of a real attraction, one that is able to help guide responding urban pressures, rather than be overwhelmed by them.

Since the river area will become a public part of the regional anatomy upon completion of the flood control improvements, its preservation will require the formation of some public authority such as a conservancy district or regional development agency, to attend to the river's

maintenance and quality. Such an entity, responsible for the maintenance of the river area would also inherit a certain degree of control over its use and continued development and would thus be instrumental in the evolution and sustenance of a river-park.

With this kind of built-in assistance, the visual continuity of the river and its setting could be more reasonably controlled and strengthened. Visual continuity can be destroyed by such structures as the cumbersome bridges that are typical to date, and by piecemeal and incompatible development of the river's setting. Vistas seen on the river's surface should receive careful attention before bridge designs are complete in order that the structures might articulate and frame the views rather than ignore them. Even the railings of these structures are important, for viewing the river from above is an interesting experience which deserves being provided for. A continuous and compatible development of the river setting is seen as a kind of green oasis extending across the region, inter-twined with foot-paths and bike routes, and accented by water features and carefully situated facilities for river-oriented activities. In this way, the river's continuity could be controlled to a great extent, while at the same time, its focal image, relative to the outlying areas on either side, could be strengthened. To develop the river's focal image in this respect will require virtually complete physical and visual access to the river. To accomplish this, river-parks are seen extending like fingers upland to open and provide vistas and walkways to and from the river. Connection, if only by scenic easement, to parks further upland could extend access far into the urban area and increase the number of people in direct and semi-direct communication with the river.

In one sense, access to the river is burdened, and in another it is enhanced by the interstate highway which parallels quite close to the river, see fig 16. For a large portion of the urban district, pedestrians seeking the river environment are physically separated by this expressway barrier. While it could provide convenient access to auto-oriented seekers, local everyday users, especially children, mothers and elders, will be denied access unless new ties are provided. These might take the form of simple overwalks and underwalks, more elaborate structures stradling the expressway, or fingers of water and sidewalks slipping under the highway to connect to upland lagoons. Both pedestrian and local auto movement to and within the river-park area will require detailed consideration. Local roads must be carefully placed in order not to mar the river setting, nor to further limit pedestrian access. By bridging the barriers and planning coordinated access routes into the park spaces, an entire network of greenways, paths and routes for bicycles and motorized people carts could be woven into the urban neighborhood providing a new sense of order that could recondition present living situations and develop new ones.

The main point of the river-park concept is that public land for the river setting be large enough to allow for a variation in landscape and a diversity of recreation facilities. This is based primarily upon the improvement of the Little Calumet river to include a foundation for further development of a river-park, and the assistance of a public entity with

taxing powers and the authority to maintain the river's usefulness and help plan and regulate functions and capacities to preserve its quality. In this way, the benefits associated with the river-park will be more assured and thus can be seen as having a substantial influence upon the degree and kind of development to be unfolded on the surrounding land. Very simply then, the river-park concept is a designed "element of capital-structure" which can be used as a spinal component of a framework for regional planning and further development. In this sense, the Corps' on-going river project study may be the most opportune way to ever significantly influence environmental planning in the Calumet region. If proper planning and development of the river's environmental resource can be included as the primary objective in these phase-one efforts and those that follow, the Calumet region may again see the dawn of a new environment and the beginning of a new era of human development; but this time, one of real quality.

THE SCENIC WAY CONCEPT (Reserves of natural relief)

In view of the possible need for as much as 30,000 acres of parkland by the end of this century, some system of park development beyond that of the Little Calumet river must be planned to allow incremental development as the needs expand. Population has already been estimated by demographers to increase 3 fold in the next 30 years. With an attraction like the river-park development added to the regional environment, the materialization of this prediction would to say the least, be favorably influenced. By planning ahead now, the projected needs implied by mounting population figures and the trend towards more leisure time, could be more accurately monitored and formulated for the gradual acquisition of park space and its development at the time needed. The basic intent of the scenic-way concept is to help establish a structure for such planning. It suggests outrigger preserves of major open space to supplement the river-park development. Hence, the river-park, as a kind of spinal life-line is seen only as the beginning of a potentially complex system of over-all park space; a regional system whose basic function is for recreation and pleasure, but which can simultaneously induce and guide further building in the metropolitan corridor.

If planning attention which is now focused on the Little Calumet river can itself be expanded to assimilate the outlying scenic-ways, significant strides could be made towards a regional framework of needed park acreage. A number of open land parcels, on either side of the river, could be sought to comprise new park space of varied character. Some areas include beach ridges, sand shoals, marshy wetlands and sand dunes that could perhaps be assigned priority over other land because of their uniqueness and impending loss to posterity. These features, combined with the Little Calumet river could add outstanding character to a well-planned regional park.

By using areas such as forest preserves, cemetery parks, country clubs, city parks and school land, already characterized as park space to begin with, planning could gradually allow and promote linkage. Acquisition of

new park land and public easements could provide connective strips of park and pedestrian-ways between. This would strengthen park development and produce a degree of order and continuity throughout the region. By having a coordinated continuous amenity to which urbanization could relate, participation in open air activities could occur in far more numbered and varied forms. Distant bicycle jaunts, horseback riding, hiking explorations, scenic auto drives, as well as localized attractions for camping, open field sports and hunting are but a few of the possibilities. Such would greatly enhance many additional living situations and would help prevent over-use of the river-park. Furthermore, with the materialization of a structured continuum of park land gradually acquired and placed under public superintendence, the scenic-way parks could provide a major counter-balance to the cityscape on either side of the river. A counter-balance of park space, coupled with the fact that it would be supervised by the public for public use, will provide the regional substance needed to help plan and manage metropolitan growth.

Considering the present physical character of the Calumet region, it is possible to superimpose plans for two main scenic-ways across the face of the land in the vicinity of the Tolleston and Calumet beach ridges. The physical configuration of these ridges, outlying either side of the Little Calumet river and embodying historical importance, make them an integral and aesthetic part of the scenic-way structure. Scenic-ways planned in those particular areas, as indicated diagrammatically in fig 18, are also a means of protecting the beach ridges from further obliteration.

Within the scenic-ways, local park roads could become part of an internal sub-structure for leisurely auto movement across the region. Potential Tolleston and Calumet beach parkways would help facilitate linkage, expedite park development, and provide convenient access to recreation and vacation lands. Wide tree-lined boulevards could cross-tie the parkways inter-connecting outlying park space with the river-park, and the main traffic artery (interstate 80) servicing the urban corridor. This network would provide a significant alternative (scenic route) for cross-country travel. The possible evolution of such routes in the greater Lake Michigan region, could see the development of a whole network of parkways, with routings as suggested in fig 19. Thus, as part of a potentially larger system of roads, the Tolleston and Calumet beach parkways would even more strongly reinforce the development of a park framework for the Calumet region.

The scenic-way concept then, takes into account available open land for park use and special land features for protection and preservation. It also suggests a way of structuring (linkage) and sub-structuring (auto-roads) this land for its best use in terms of its scenic and recreational potential. By planning the Little Calumet river-park and the Tolleston and Calumet beach scenic-ways together as one framework of public land and water, the continued development of regional enterprise, attracted to this valuable and somewhat permanent source of environmental properties, could be more rightfully controlled and managed. Hence, planning which pursues the development of a regional framework of park space is seen as perhaps the most legitimate and feasible means available to correct past happenstance and influence future land-use under present circumstances. As

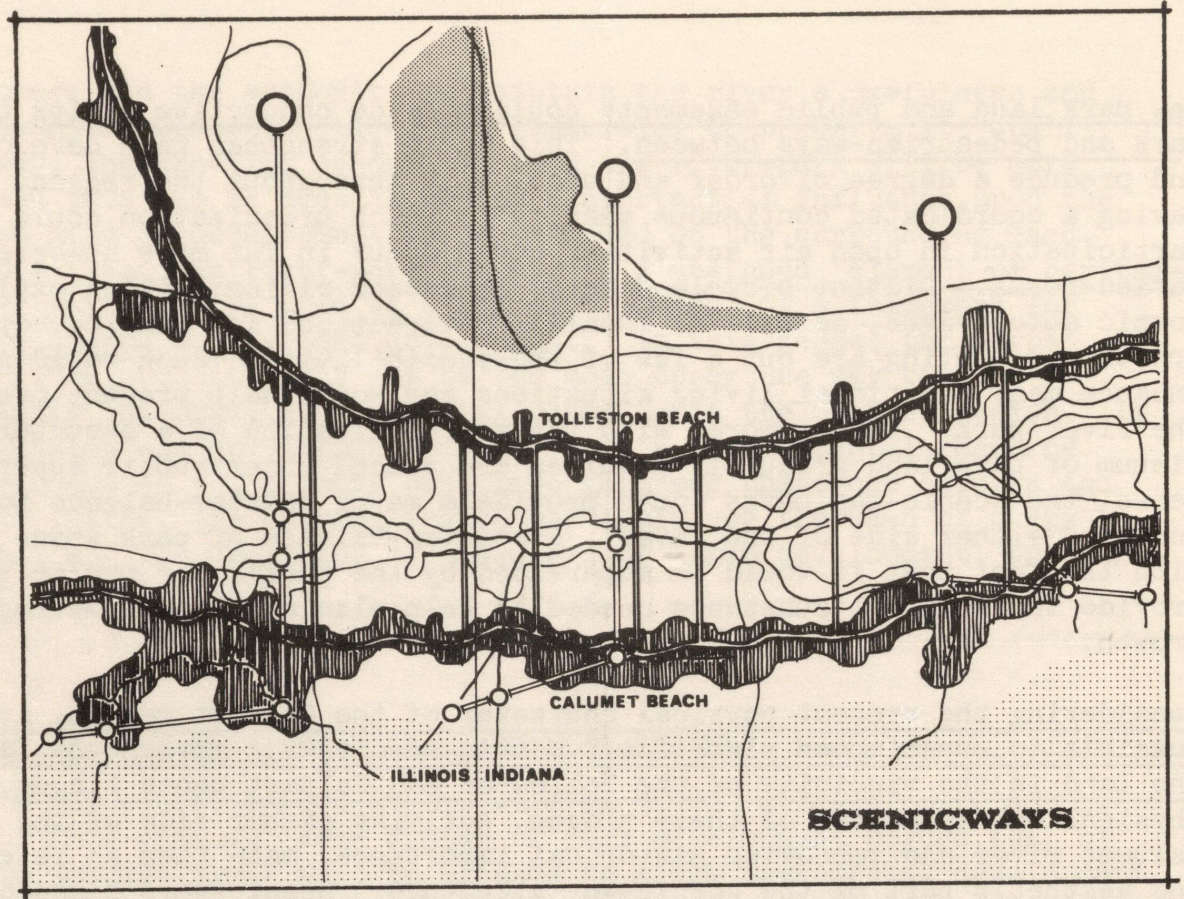
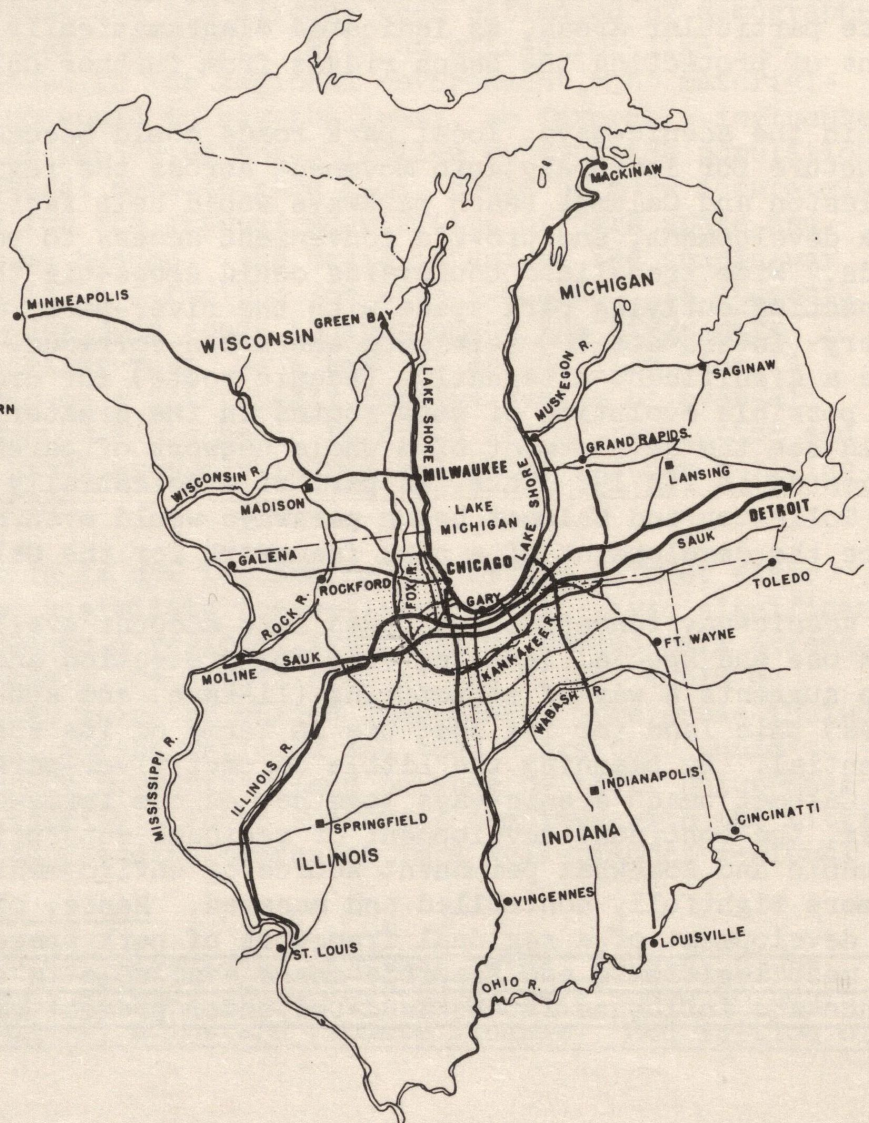


Figure 18

A POTENTIAL PARKWAY NETWORK
RADIATING AROUND THE SOUTHERN
TIP OF LAKE MICHIGAN - RELATED
TO SCENIC AND RECREATION COR-
RIDORS

Figure 19



such, it could be considered as a basis for the environmental development of the Calumet region; a development which would include living situations more likely to attract and sustain employment sources, social improvements, long-term residency, and economic vigor.

THE REGIONAL CITY CONCEPT (Infill of urban fabric)

A not too critical look at the Calumet region will indicate an insistent degree of human discontent. If this situation is to be tempered and kept from mounting in the face of increasing population, the human environment must be planned for reconstruction at a scale and with an effort never before attempted. It is not difficult to see the degree of specialized technology, and even specialized planning in the region. That little or none of this specialization is related to, or is a part of an over-all consistent whole, is equally obvious, and unfortunate. Considering the problems of the river basin and those fragmented between state and local government, industry and commerce, (not to mention the over-all social, economic and political conditions which ignite disunity and disorder) major improvement of the human environment may come only from relating all of these aspects to a common whole. In the case of this study, that common whole is the total life of the Calumet region; a region physically defined in terms of an oblong river basin, beach ridge configurations and a corridor of urbanization radiating out from a highly industrialized area fronting on Lake Michigan.

Planning at this level has already been mentioned in terms of a regional park system. However, that system is only the first stage of a gigantic task of coordinating and directing the development of physical facilities (along with an evolution of sorely needed political, economic and social improvements) to comfortably house a swelling population and make life really worth living; and living worth participating in the total life of the region. The regional city concept is seen as the third and most complex part of this major planning effort. With the river-park and scenic-way developments opening the way, the design and development of better human habitation in the Calumet region could follow. Thus, the main intent of the regional city concept is to deal with the infill of urban fabric around the park system's framework of open space and recreation facilities.

The regional city concept suggests a great degree of regional coordination and development to gain significant efficiency and cost sharing, and thus savings. This could be accomplished by increasing the density of facilities within the present pattern of development. Such would maximize the use of costly city services and conveniences, and help gain a higher use of the land. The actual form of the new development could be varied, but considering the present patchwork of development, it has been interpreted in the form of interstitial parcels of high-density city facilities. Planning a phased application of parcel-development would gradually transform the face of the region into a well defined regional city. Application of the interstitial principle in this respect is shown in fig 20.

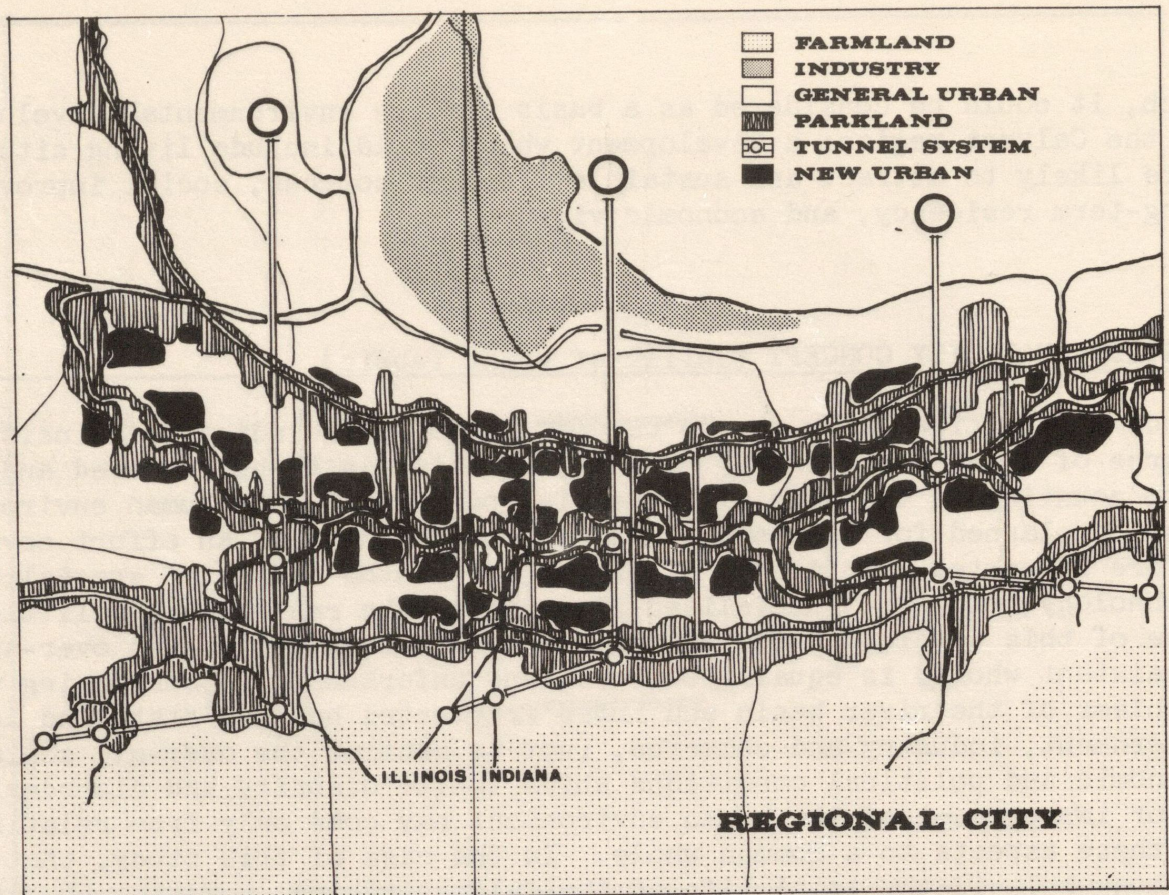


Figure 20

The various borders of the regional park system will provide attractive edges for city facilities, most especially high density facilities. Assured a reasonable degree of permanent natural qualities, such locations will attract both private and public building. If guided by planning principles which suggest the best use for land, such as the principle of cluster development for residential areas, most of these facilities could be provided with "doorstep" open space. Individual communities might then take the form of residential clusters around a new community center or around an existing village or town. There might also be completely new and more complex multi-storied and horizontally structured communities. All of this then, could very well encourage redevelopment within the existing cities and communities of the Calumet region.

However, the existing fabric and planned new parcels of the regional city will require a regional network of service and support facilities to efficiently function. This must be based on coordinated planning and organization far beyond that existing today. Such a network would provide numerous advantages and cost sharing that could make or break cities (operationally) in the future. Ideally, a single governing body or regional city compact would be formed to effectively initiate and coordinate the development and operation of such things as transportation (air, auto, rail and water), sanitation, power, water supply, communications, health, fire and police systems. This could save millions of dollars over the long run when compared to the individual (city) efforts made to provide the same kind of facility or convenience separately. With the savings gained, the regional city might elect to pass the savings on to the consumer and the taxpayer, or to develop new services and improve

existing ones. Special facilities for education, culture, history, commerce, transportation and recreation are but a few of the potential activity generators that could materialize. The fact that they would be supported by regional tax dollars, built and supervised by a regional governing body, and used by regional inhabitants could greatly enhance their quality and their capacities.

With this in mind, development of the regional city could really lend credence to a better way of life in the Calumet region. Within such development lies the order for further expansion of human endeavor in the urban areas of the region. As indicated in fig 20, the entire metropolitan corridor, open-ended and nearly 5-miles in width, could become an intense evolution of the regional city. It would thus combine business, living facilities and recreation into a vital linear core closely related to the region's major sources of employment.

If the key opportunity that lies in the improvement of the Little Calumet river can become the beginning of a strategy that sees the ultimate realization of the regional city as a possibility, an environment of outstanding quality could be within the grasp of tomorrow's generations. But to do this, an awareness in the benefits to be gained must be prevalent. Such must bond people together to seek improvement for the common good of the region. Only by realistically planning the total over-all scene can the area be transformed into a harmonious environment; an environment in which land, water and city all combine to promote a viable condition for innovative movements, creative social, political and cultural activity along with a degree of economic vitality. This is the essence of the regional city concept, and the culmination of all of the considerations and concepts discussed within this report.

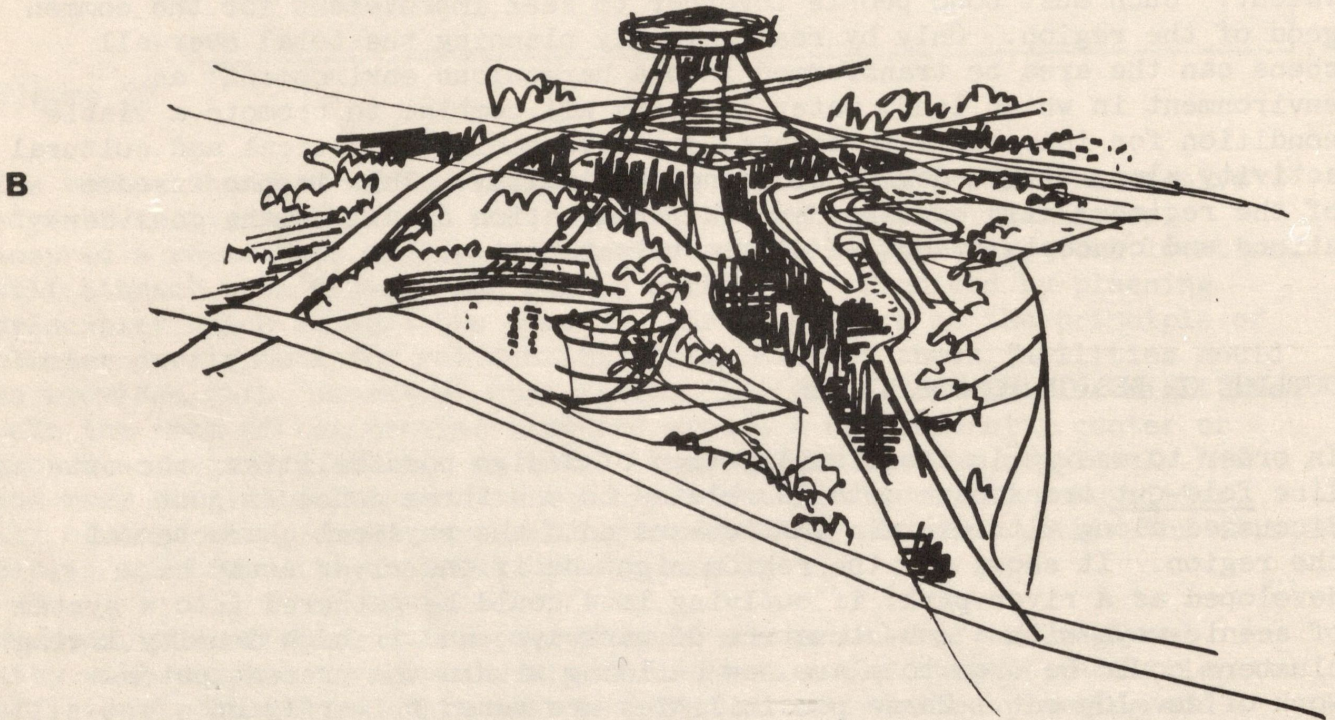
OUTLINE OF DESIGN POSSIBILITIES

In order to assist in the visualization of design possibilities, the outline fold-out transposes details related to the three concepts just discussed along with certain particulars onto the physical character of the region. It shows what the region might be if the river could be developed as a river-park; if outlying land could be gathered into a system of scenic-ways with a sub-structure of parkways; and if high density living clusters could be used to place new building within the present patch-work of development. These possibilities are based primarily upon a framework of public land and water to induce and manage further development according to plan. The outline contains only a beginning to the subsequent planning and design work that will be required to bring the total region a step closer to the realization of such a plan. It is intended to help establish the public awareness needed to permeate further planning and improvement with sufficient public support to effect a really comprehensive development of the regional environment.

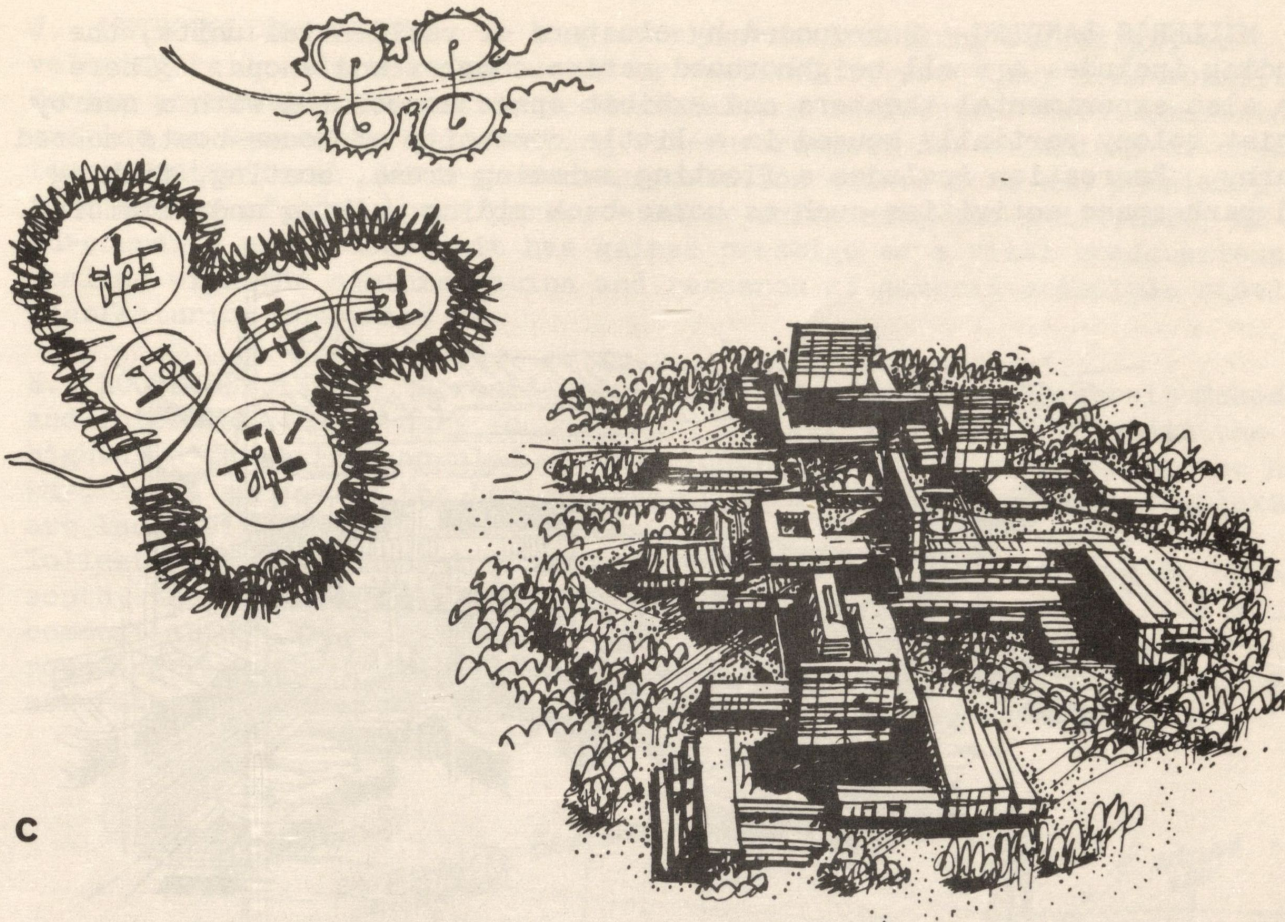
On the outline fold-out, particular points have been selected which represent different kinds of potential individual developments. Note that the key letters shown circled on the fold-out locate the development descriptions which follow.

A. INDIANA DUNES NATIONAL LAKESHORE A recently authorized land acquisition for the national park system incorporating shoreline and backup areas both east and west of the existing Indiana Dunes State park. This is a natural area with many high-blown sand dunes and rough wind-swept timber along the southern shore of Lake Michigan. It also includes much of historic Baillytown, a trading post and the first settlement in the area. The Lakeside parkway passes thru the area connecting the eastern and western sections of the park via auto-ferry around Burn's Harbor and the Port of Indiana industrial and shipping complex.

B. PORT POINT A recreation facility located at the junction of Burn's waterway and Burn's ditch (Little Calumet river) where a tourist tower provides a beautiful vista down the waterways and out towards Lake Michigan. Here is an opportunity to observe the port operation at Burn's harbor along with its related steel complexes towards the east. A marina adds service for cruise craft from the lake and permanent moorings for resident craft. The tower's upper module is a popular attraction of tourists, businessmen, and area residents alike.



C. JUNIPER DUNES Compact clusters of high rise and terraced housing are carefully sited amidst this unique sand dune area bordering a new preserve on the north, and the river-park on the south. As compared to the conventional block layout of housing, these high density facilities provide close at hand open space; recreation and vistas for the benefit of a much greater number of people. Nearby is the South Shore Commuter Lines transit stop which services the National Lakeshore park and Juniper Dunes as well.



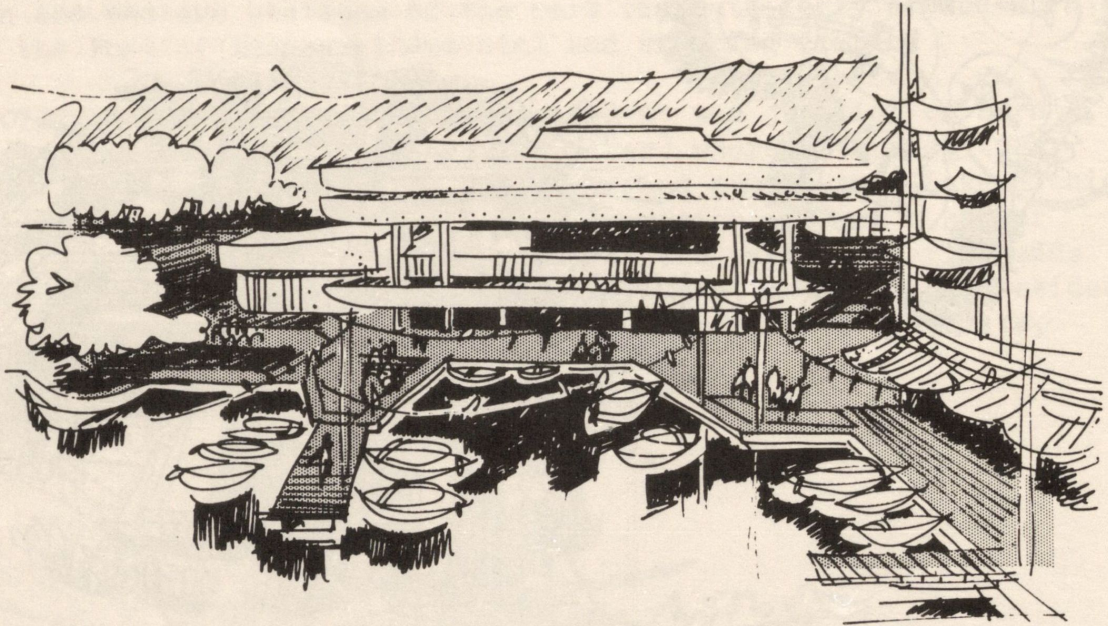
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D. KALAMUS STATION A traveler's rest and service area at the crossing of two major interstate highways; the entire space focuses upon the water spout created by the pumping station which augments the flow of river water. It provides facilities for rest and dining, lodging, camping and boating as well as auto service. In the main lodge, a restful movie takes the hurried traveler on an adventure tour of the environmental and industrial assets of the Calumet region.

E. MARQUETTE PARK This old and well established lakeshore park has had a small boat harbor added and its open space area enlarged to enclose the inner lagoons that have remained since the old Grand Calumet river was closed off to the lake by drifting sand. The park has also been enlarged southward to preserve a significant area of interesting beach shoals, while the harbor has become the major small craft port fronting on Lake Michigan. Fast hydrofoils, auto-ferries, tour and cruise boats are available on schedule to other lake cities. Westward along the lake shore, the Lake-side parkway fronts the U.S. Steel complex.

F. EAST GARY CENTER A redeveloped city center overlooking a placid lagoon connected under the interstate highway to the Little Calumet river. Enveloping railroads and located close to both the Little Calumet river-park and the Deep river tributary, a mixture of highly populated residential, community and business facilities has become one of the major centers of vital operations and human endeavor within the region.

G. MILLER'S LANDING Surrounded by clusters of residential units, the landing includes a small neighborhood marina complex and shops. There are also experimental theaters and exhibit space associated with a nearby artist colony partially housed in a little community of house-boats moored nearby. Recreation includes a floating swimming arena, boating, fishing and park-space activities such as horse-back riding, hiking and picnicing.



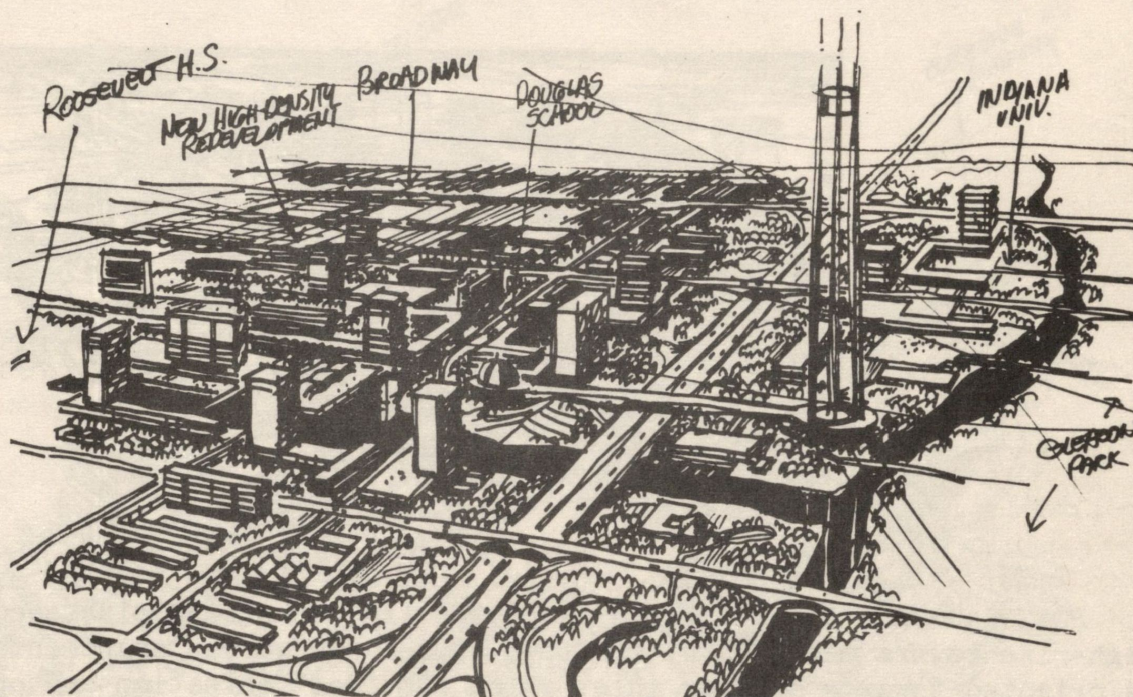
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H. LAKE POTTAWATOMIE Composed of several river reservoirs between which seemingly float interstate highways 80 and 65, Lake Pottawatomie is the largest on the river. It was formed around an awkward junctioning of roads to provide an extensive recreational facility in what would have otherwise been poorly accessible areas. Recreation is varied and includes both winter and summer activities utilizing numerous water, shoreline, and park space facilities.

I. CALUMET INFORMATION CENTER Near the Tolleston Beach parkway at the north end of interstate 65 and its connection with the Indiana tollway, this center is located in the midst of natural scenery (beach shoals) and educational interests. It provides facilities for rest and dining, limited lodging, camping and auto service. Its primary function is to advise and convey information about the region, "its activities, its people, its configurations, its total life". While movie adventures explore the historic development of the Calumet region, video-tape and live television programs tour the metropolitan life of the region and the Steel Coast manufacturing and shipping complexes. For the visitor who has more time, mini-rail sky tours connect the center to steel mills and harbors, dune park areas, and to boat trips along the Little Calumet river or at Marquette park.

J. METROPOLITAN CENTER A long corridor of low-slung buildings, enveloping railroads and punctuated by vertical towers, Gary's Metropolitan Center accommodates an office, commercial and residential development to provide an agreeable and exciting sub-environment for a variety of downtown activities. With good transportation connections and proximity to a number of open space parks, a major university and a diversity of surrounding urban areas, it has gained prestige as a vital headquarters dealing with the administration and research of several principle steel manufacturing companies.

K. ROOSEVELT INLET A residential development between Roosevelt School and interstate 80 in Gary focuses upon a river inlet passing under the highway. The inlet, coupled with a pedestrian bridge overpassing the highway, lends access to the Little Calumet river-park. High-rise complexes are laced with boulevards and greenway strip-parks connecting into Tolleston Beach parkway and Metropolitan Center further north. To the south, they connect into Indiana University and Gleason park. Here a communications tower rises high above the ground to overlook the surrounding river-park and metropolitan area. This tower has become one of several outstanding focal points and landmarks across the region.

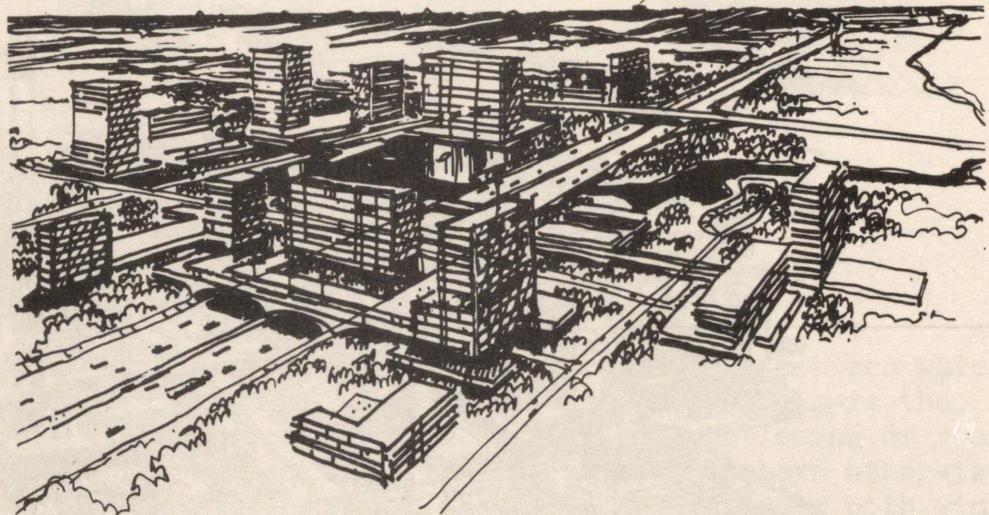


L. UNIVERSITY PARK A riverfront university of major magnitude, Indiana University, Northwest campus, is a composition of innovative quality tools and skills for educational development and self improvement on a continuing basis. University Park extends along Broadway on the east side of Gleason Park, coming into contact with urban Gary further south. High density university housing is located around the campus area and is also outlying along University road. This road connects University park, the Agricultural Institute and Purdue University to the west.

M. CHALEMEL PRESERVE A nature preserve incorporating a ponding of the original river in its natural setting of reeds, pondweeds, cat-tails and small trees. It is combined with facilities developed to show the various aspects of the natural resources and preserves in the Calumet Region. A couple of pedestrian oases under the interstate provide physical links between the river and upland housing areas.

N. AGRICULTURAL INSTITUTE A series of experimental plots operated by Purdue University, this space provides ever-changing scenery. It is characteristic of the diversity of open space that is a part of the river-park. The many and varied experiments concerning agriculture, truck farming and flower growing gives the visitor an interesting in-season tour, and provides a country atmosphere to a busy urban corridor.

O. BRIDGE POINT A highway-lake complex of high density city facilities surrounding a lake (highway borrow pit) for recreation and views. Shopping, office and parking facilities span interstate 80 interconnecting living facilities around the north side of the lake and the open river setting to the south. This varied community with a water-oriented environment is also conveniently serviced by transit modules traveling above the interstate.



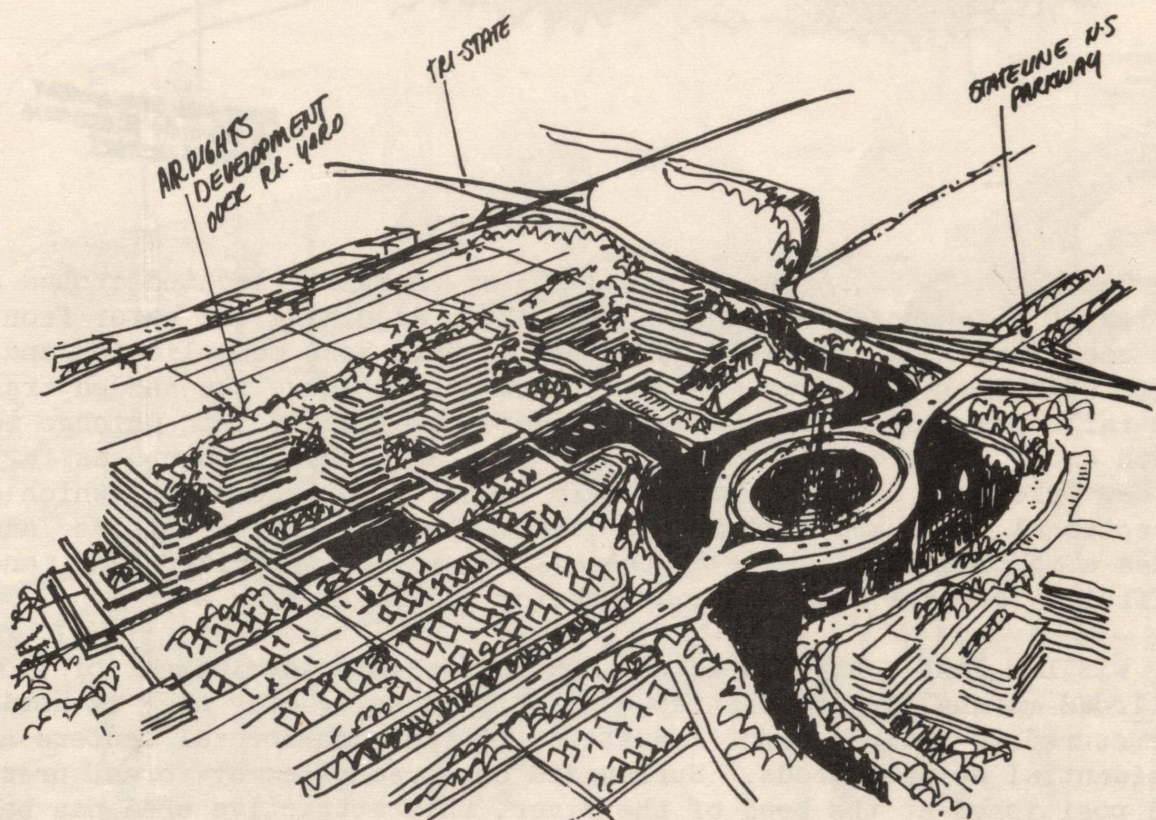
P. PORT LAGOON A comfortable new community of housing clustered in high-rise towers accented by low town houses and garden apartments. It is oriented towards a river inlet which provides recreation and open vistas to the river and beyond. There are also moorings for an ever-changing group of touring house-boats which interestingly mingle with resident craft.

Q. HIGHLAND BOAT CENTER A complete sales and service center utilizing a bend in the original river. Operated by a nearby manufacturer of boats and water sports equipment, it provides one of the biggest displays of goods in the entire region. The center is closely associated with the community activities of Port Lagoon and incorporates some of its community-recreation facilities.

R. PURDUE UNIVERSITY Another major university in the Calumet region meeting the demands for quality education. Purdue's Calumet Center campus focuses upon a broadly landscaped inlet tied to the river thru a rather densely forested spur of the river-park. While small pleasure craft stand idle in the campus marina and swans glide across the inner lagoon, students move inside a climate-controlled linear structure stretching from interstate 80 north across the Tolleston Beach parkway.

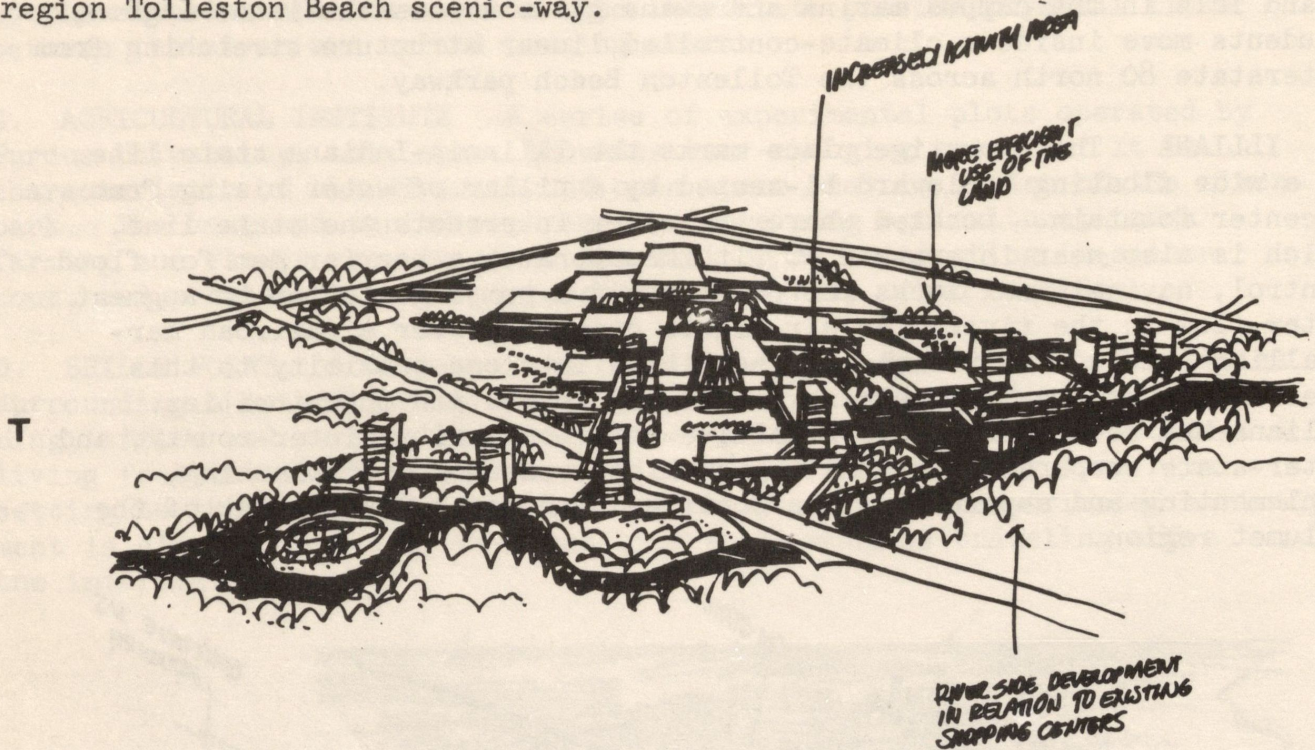
S. ILLIANA This prestige place marks the Illinois-Indiana state line by a wide floating boulevard bi-sected by a pillar of water rising from a center fountain. Located where the river intersects the state line, which is also near interstate 80, it incorporates a barrier dam for flood control, navigational locks for boating and a pumping station to augment water-flow in the river. An air-rights community over a railroad marshalling yard adds a variety of facilities in close proximity to this pleasant river area with superb vistas and recreation opportunities. Illiana has become the scene of active inter-community, inter-county, and inter-state cooperation with a regional body charged with planning, implementing and supervising the continued and total development of the Calumet region.

S



T. RIVER OAKS A vast and well-established shopping center that has opened its inner-facing court to a river inlet and fully utilized its parking surfaces by developing tower housing around and over what was seemingly a sea of cars. The river facing towers are interconnected with the center's shopping and entertainment facilities and provide a unique living situation. River Oaks is also the site of interesting tourist

attractions; "vogageurs" roam its central lagoon and parts of the river for the enjoyment of all ages, tourist and resident alike, and adventurous "coureurs de bois" or bush rangers take hikers on scenic exploratory trips into the nearby forest preserves which are part of the cross-region Tolleston Beach scenic-way.



U. CALUMET WATERS A convenient commuter community located around a series of river reservoirs forming a lake. Adjoining the water front on the east, railroad marshalling facilities have been consolidated and a climate-controlled linear community, now exists above the needed tracks. The railroads provide rapid commuter service directly into Chicago to the north and connections on the Illinois Central lines to points as far south as New Orleans. Circular towers help identify this community which offers exceptional views and a variety of recreational activities. The lake provides a major body of water at the western end of the river-park, and sufficient surface area for water skiing and sailing.

V. WISTLER PARK Associated with the sky-rights development of two railroad marshalling facilities, this high density city area is horizontally structured to include major industrial offices, commercial centers and residential neighborhoods. Surrounded on three sides by forest preserves, and positioned at the bend of the river, this attractive area has been regained from heavy-industry use. It provides vistas of river, forests and shipping activities on the Sag channel. Interstate 57 and three parkways converge at this point, and commuter transportation links the community to the major commercial and industrial operations along the Sag channel, and to Lake Calumet harbor.

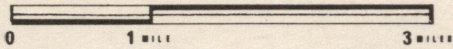
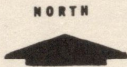
W. VINCENNES POINT A tourist center located on a finger dividing the Little Calumet river and the Sag channel. It provides service, information and rest facilities for tourists and also for surrounding residents.



L A K E M I C H I G A N



G A N



EXPRESSWAYS AND TOLLWAYS



HIGHWAYS AND CONNECTORS



PARKWAYS AND BOULEVARDS



RESIDENTIAL AND COMMERCIAL

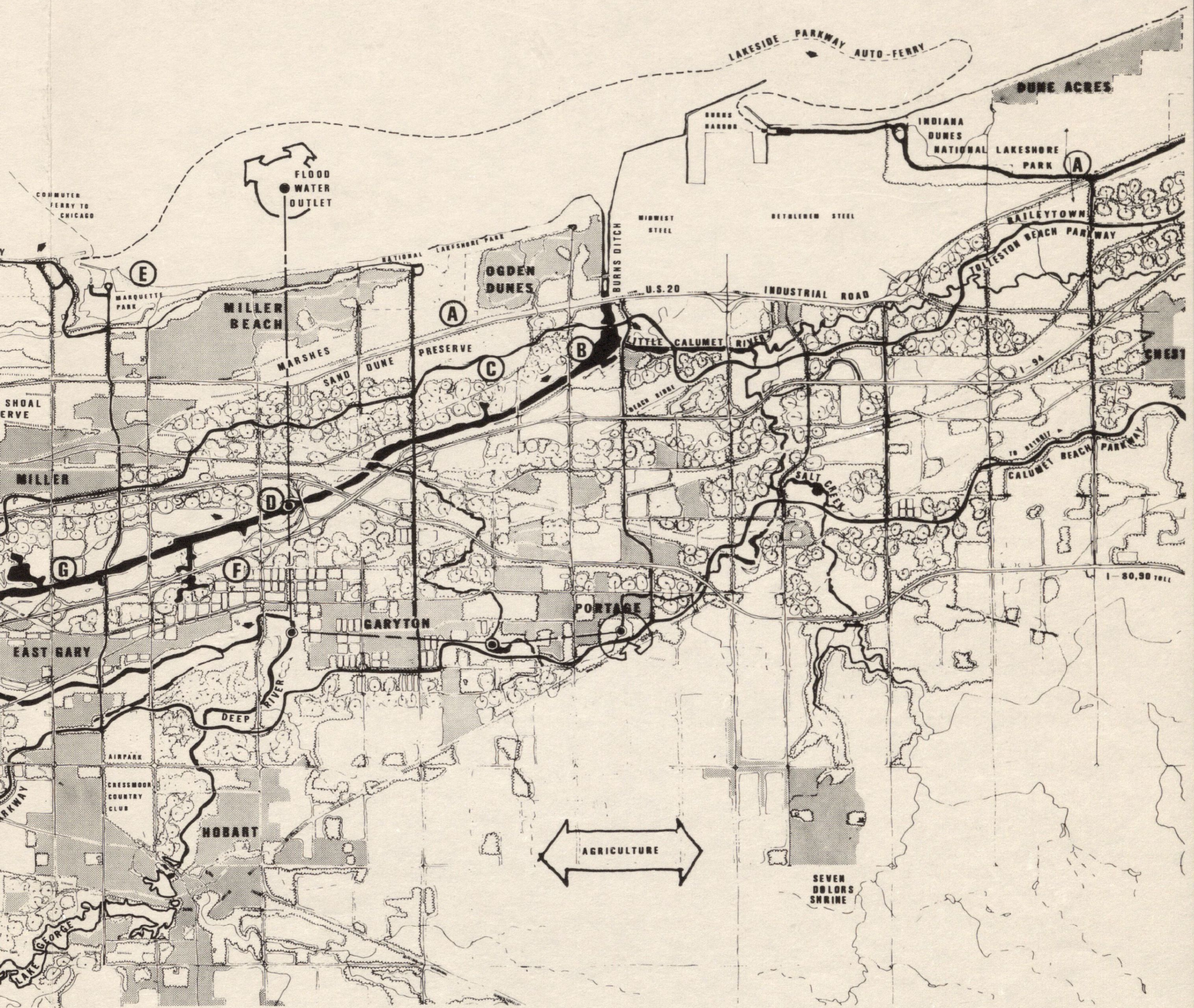


FLOOD DIVERSION INETS AND

PUMPING STATIONS



VIEWPOINTS

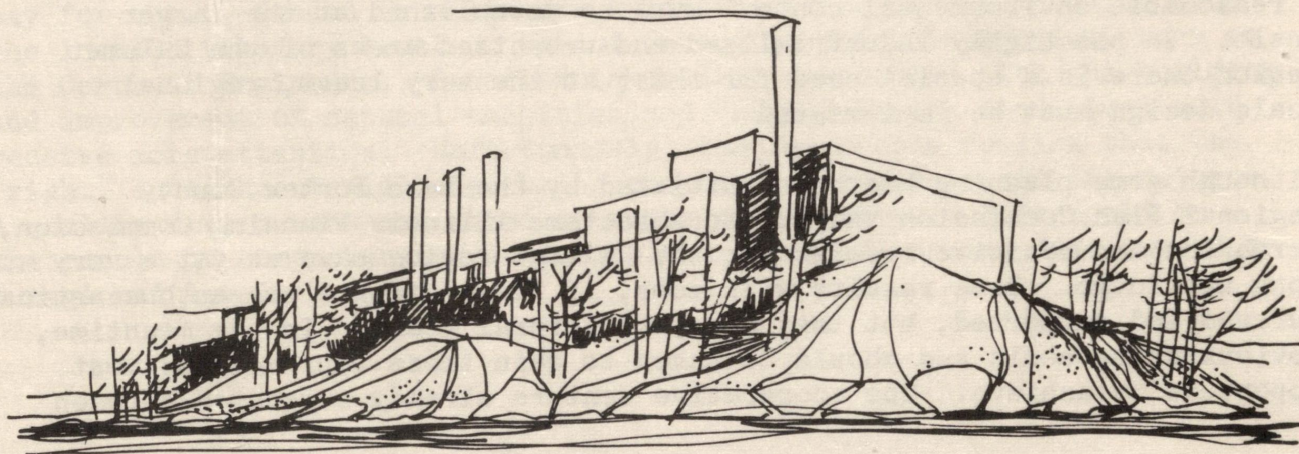


Displaying graphic models of the Illinois inland waterway system, the Little Calumet river-park and the regional system of scenic-ways and park roads, the center provides driving information and a packet of data to help visitors have an interesting and scenic vacation in the Calumet region; and new residents to become acquainted with its history and its attractions. While hydrofoil tours to Chicago, thru Calumet harbor and over the waters of Lake Michigan are scheduled about every three hours, extended excursions down the Illinois and Mississippi rivers to St. Louis and New Orleans are also available. The skylodge at Vincennes Point allows terrific views of channel shipping and the floating restaurant adds another dimension of interest. There are recreation facilities in the nearby forest preserves, and the center also provides tourist parking garages, a marina, auto and boat service facilities.

X. WATER HARBOR This area provides space for a variety of water oriented sports. With one of the country's largest climate-controlled community baths, Water Harbor has become a major sports arena. Several still ponds provide outdoor summer swimming and winter skating. Numerous land forms skirt the area for climbing and sliding and two marinas service both tour and resident craft alike.

Y. PORT OF ILLINOIS At this shipping and commercial center, the tourist is confronted with the complex layout of Lake Calumet harbor, one of the main sea and lake ports in the midwest servicing the pulsing megapolitan area around lower Lake Michigan. From atop the identifying control tower, a panoramic view shows the harbor facilities in a dramatic array of activity both day and night. A short movie will take the visitor on a historic trip thru the development of Calumet harbor and the Port of Illinois with side-trips through the Metropolitan food center and the Port's commercial and administrative headquarters. Dockside retail facilities offer shopping, restaurants and ethnic entertainment in a colorful array of shops and galleries which have become known throughout the entire region for their uniqueness.

Z. CALUMET HARBOR One of the most dramatic sights in the Calumet region, the harbor's water is now cleaned by filtration and the shoreline is maintained by utilizing landforms and landscaping to further enhance the dramatic shapes of ships and industry. Educational tours take the visitor on a barge trip, into the wheel-house of an ocean going ship, and through some of the steel manufacturing plants which have helped shape the destiny of the region.



SECTION 4

SUBSEQUENT ACTION AND STRATEGY

America's urban growth has been almost instantaneous in comparison to that of Europe. Although some factors such as the automobile and mass-immigration have had a somewhat different and more powerful influence on the kind of development that this country has experienced, the U. S. can still learn much from the living environments which have been created abroad. Over a period of centuries, European urban areas have evolved with a sense of human value as characterized by human scale spaces and densities of construction. This course was established long before the advent of auto transportation and has since grown thru centralized planning and gradual development which has managed to keep human values foremost in consideration. Today, Europe is faced with problems brought on by an increasing use of automobiles, the rapidity of change in a technological era, and a continually increasing population. However, in most cases, already established planning measures temper these problems and safeguard values by compensating for and directing new pressures within an over-all context of development.

Past planning in the U. S. has been focused primarily upon single areas. It has sometimes involved the bulldozing and complete rebuilding of urban spaces before they are little more than 50 years old. Such action without regard for broad, long-range planning has been not only costly, but terribly disruptive to society. As a further result, this situation has made it almost impossible to establish any assurance of permanence, or lasting qualities upon which to develop an environmental context. With the increasing number of problems brought about by the circumstances of this century and the fact that they are affecting more and more area, a reasonable environmental context must be established at the larger scale. In the highly industrialized and urbanized areas of the Calumet region there is a special need for this; at the very least, regional scale design must be implemented.

Although some planning has been initiated by the Lake Porter County Regional Plan Commission and the Northeastern Illinois Planning Commission, permanent and positive results for the Calumet region have as yet a very long way to go. Some results will come, if these efforts are enthusiastically pursued and supported, but they may take several years. In the meantime, obvious steps could and should be taken to gain those improvements most opportune to achieve. The cooperative venture already suggested between

the Corps of Engineers and local interests for the revitalization of the Little Calumet river is one of those improvements.

The Little Calumet river project is the basic beginning of action and developmental strategy in the Calumet region. Here is a project that will be partly carried out by a government civil works authorization funded by Congress (Corps of Engineers) and partly by local interests (local government, institutional and private). It is nothing more than a joint development project similar in size (but not yet in scope) to the "Crosstown Expressway" in Chicago. The Chicago project deals with the development of an urban environment surrounding a transportation corridor. It has required considerable coordination at all levels of government, just in planning. By incorporating the improvement of the surrounding area with the building of a road, the "Crosstown" project will provide benefits greatly exceeding the typical highway effort. The Little Calumet river project deals similarly with the development of an urban environment. In this case however, that environment surrounds a 30-mile long river. The question is whether the river is to become a typical flood control channel, or a recreation spine of water and scenery.

The procedure for obtaining Congressional approval of a project is the same whether it is large or small, good or bad. Success in this matter depends upon the project's benefit to cost ratio. In regards to the Little Calumet river, this could easily be evaluated on the favorable side (above 1 to 1) if the river's full potential is taken in to account. In order to do this, there must be sufficient motivation on the part of local citizens to bolster state and local support, primarily in terms of paying a share of the cost of developing that potential.

Thus, shaping the Little Calumet river into something more than an ordinary flood control device, and translating ideas like those discussed in this report into active environmental development, boils down basically to one thing--money. The amount of money needed to really improve the river and the region may seem to be of insurmountable quantity. The fact is simple and clear. The magnitude of the environmental development effort that must be undertaken in the Calumet region is indicative of the approach to financing. Planning, financing and development must go hand in hand as regionally coordinated efforts. As much as a billion dollars may be needed between now and the end of the century. Such a consideration simply cannot be postponed. Improvements will not materialize without a responsible willingness on the part of all levels of government to organize and pay for them. Needed is a sincere reconsideration of value scales from the local citizenry level up to and including federal agencies, such as the Corps of Engineers. Benefits inherently associated with the building and improvement of natural amenities and "right" living conditions must receive more attention. Unfortunately, too few people realize that the "right" environment will also bring the highest economic and tax returns. A quality environment and economic vigor are synonymous. Both could be the result of comprehensive action; planning and financing development on a regional level.

Should the Corps of Engineers be able to form the groundwork for further river development, and if the legislators of the states of Indiana and Illinois can muster moral and financial encouragement, it seems plausible that some sort of comprehensive plan of action could be worked out. However, the commissions that are working with the Calumet region now, must deal also and primarily with the larger scale (Lake-Porter County and North-eastern Illinois). Their attentions cannot be directed, to the degree needed, to deal specifically with the Little Calumet river basin and its problems. The situation is not overly bleak, but it does indicate good reason to examine the possibility of organizing a new entity of regional authority.

Furthermore, methods of dealing with the environment must be given new and serious thought. At present, the chief obstacle to producing a better environment is the labyrinth of agencies and processes which must be involved. Financing, codes, approvals, plotting, minimum standards; all affect planning to a greater degree than does the designer. Reform of this restrictive system could begin with public agencies recognizing their seemingly forgotten responsibility for maintaining some balance between nature and man. Logically, all public works should be required to account for their effects in favor of gains over losses. Even so, with the number of many faceted agencies existing today, useful reforms might be more difficult to bring about than the establishment of completely new public instruments to bypass the difficulties.

A public development corporation could be such an instrument. Composed of representatives from the various community bodies (urban and rural), it would act as one entity with a modest consolidation of public authority. It could effectively and efficiently undertake planning and financing, and the supervision of further development in the Calumet area. Certain tax laws could be reformed to induce the flow of private investment into the corporation. Such capital could be used to acquire enough land to open large-scale opportunities for innovative private development. The corporation would function according to the attention of experts and a coalition of local interests (primarily corporate spokesmen representing the public). Thus, the public would become an active participant in the creation of environmental conditions, rather than a passive buyer in an erratic market.

In summation, the most important over-all consideration affecting the river and the Calumet region is the coordination of environmental development in a clear and definitive way. With this in mind, the following points are suggested for review and consideration.

1. Within the scope of the Corps of Engineers study, view the river as the means of reclaiming control of basin resources, and adopt a planning and design approach accordingly. The river-basin project should provide permanent assurance of flood control and quality water, and far-ranging goals for recreation and environmental attractions which could engender better living conditions in region.
2. Within the scope of on-going study, planning and resource inventory, initiate a program to coordinate ways and means of acquiring open-space,

and land that might be rehabilitated for park use. In addition to local funds (taxes and revenue bonds), this could include use of state land and water funds (Indiana); several million dollars a year might well be directed to the region for that purpose. It could also include federal open space funds from the department of Housing and Urban Development (HUD). Furthermore, the value of an open lands project which deals with the solicitation and use of industrial and corporate monies, as well as private contributions (gifts, dedications, or for tax benefits) should not be overlooked.

3. Consolidate and coordinate the various planning efforts and separate public works all individually funded within the several levels of government. This would include the planning and building of highways and transit lines, sewers and water supplies as well as public buildings such as schools and universities, fire and police stations. At the same time, government and planning agencies must assert a more positive control on development in terms of responsible law enforcement, and in the pursuance of improving the region's environmental quality. The reoccurrence of such aberrations as the recent development of an industrial site along the Little Calumet river (Lake County, Indiana), located generally within a residential district should be guarded against.

4. Direct efforts towards the formation of a regional compact which could most efficiently deal with the continued planning and development in the river basin. Such an organization should be delegated authority and be funded by local government. It could conduct the development, use and maintenance of the river park facility, coordinate the open lands project and deal with the planning and construction of other public works. It would provide the needed authority to help gain financing for continued development (federal, state, local and institutional), to levee taxes or user-charges for maintenance and operation, and to supervise and guide private development. Its form might be similar to a public development corporation, or it could be a regional compact or governmental forum, ratified by both state legislatures and partly funded by the same.

5. Effectuate a promotional campaign to spark interest in the environmental development of the river, and the basin-related region. This would include publicizing work already done, and could be kept going by encouraging new projects and studies in the professional and academic fields. These might deal generally with the need for more innovative recreational facilities, creative new housing and community facilities, or more specifically with the images and functions of regional government, health, education, and cultural complexes.

These five points suggest potentially significant beginnings. It is inconceivable that there could ever be an end to the environmental development of the Calumet region. Planning must allow for permanency and yet be flexible enough to account for rightful change as time asserts new need and demands. The LMRPC plan suggests use of a permanent source of natural amenities to adjust and balance regional living and to provide and maintain a basic structure for tempering change. Yesterdays' needs were for rapid industrialization. Spontaneous planning accounted little for needs today. Because of the technological revolution they greatly

differ from those before. Demands are for quality living areas and recreational spaces. Thus, the use of a lot of land is going to have to be readjusted. What's more, this will require consideration of both the needs of today and those that might lie ahead in the computer-automation age.

For the Calumet region, the time for responsible decisions to govern man and the environment he lives in can no longer be postponed. As Lewis Mumford said in 1938, "The cure lies in starting from the common whole--a region, its activities, its people, its configuration, its total life--and relating each further achievement in specialized knowledge to this cluster of images and experiences." Improvement will require time and effort, and will probably never be concluded. A significant opportunity to start is at hand. Spearheaded by the flood control project now culminating after twenty years of study, improvement could really be seen on a meaningful scale. The present environment is out of balance. Industry and urban growth have robbed man of natural amenities close to home. If the pressures of urbanization in the face of continually mounting population figures remain unplanned and unaccommodated, much more chaotic and inhumane living conditions will be almost certain. The time to act is now!

Edited by:

Richard W. Cramer

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December 1, 1968

Authorized by:

George N. Hall

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December 1, 1968

ACKNOWLEDGEMENTS

ABOUT THE LAKE MICHIGAN REGION PLANNING COUNCIL (LMRPC)

The LMRPC is a non-profit corporation, incorporated under the laws of Illinois on May 28, 1962. Its ultimate objective is to achieve for that total area around all the shores of Lake Michigan, one of the best planned and most stimulating regions in the country. Its main purpose is education and research. It has been organized by architects to bring together all professional groups and individuals having an interest in the field of planning and urban design; to research, assemble, correlate, publish, and disseminate information, in order to foster comprehensive planning in the Lake Michigan region. The LMRPC is not a political organization and is non-partisan. It intends to serve the public by presenting and promoting a professional approach to planning problems related to the environmental development of the region.

The LMRPC was founded as a joint committee by the four AIA (American Institute of Architects) chapters located in the states around Lake Michigan. These chapters, Wisconsin, Chicago, Northern Indiana, and Western Michigan, appoint six delegates to represent each state annually. Membership has been opened, by invitation of the Council, to all planners, architects, engineers, lawyers, geographers, sociologists, economists, political scientists, representatives of government, business and industry, and other qualified individuals having an interest in the field of urban design and planning in the Lake Michigan region. The main supporters for the LMRPC so far have been the four AIA chapters. However, to carry out its research projects, financial help has been and is being solicited from foundations and other sources.

The LMRPC's interest is in those areas where no existing planning group or agency is active. Its efforts are directed toward supplementing the work of state, regional or local organizations by going beyond political and geographic boundaries. The need for a regional planning entity that can transcend state lines to solve planning problems in the Lake Michigan Region is increasingly recognized. The LMRPC is a group of private professionals prepared to assist this need as a matter of civic and professional responsibility. Office headquarters for the Lake Michigan Region Planning Council are located at:

35 EAST WACKER DRIVE, ROOM 2816 CHICAGO, ILLINOIS 60601

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